

EXHIBIT 6

FILED UNDER SEAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

WAYMO LLC,

Plaintiff,

vs.

Case

No. 3:17-cv-00939-WHA

UBER TECHNOLOGIES, INC.;
OTTOMOTTO LLC; OTTO TRUCKING LLC,
Defendants,

/

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY
VIDEOTAPED DEPOSITION OF JAMES HASLIM
THURSDAY, MAY 4, 2017

Reported by:
Anrae Wimberley
CSR No. 7778
Job No. 2610396

Page 1

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

WAYMO LLC,

Plaintiff,

Case

vs.

No. 3:17-cv-00939-WHA

UBER TECHNOLOGIES, INC.;

OTTOMOTTO LLC; OTTO TRUCKING LLC,

Defendants.

/

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

Transcript of video-recorded deposition of
JAMES HASLIM, taken at Quinn Emanuel Urquhart &
Sullivan LLP, 50 California Street, 22nd Floor, San
Francisco, California 94111, beginning at 10:16 a.m.
and ending at 7:11 p.m. on Thursday, May 4, 2017,
before Anrae Wimberley, Certified Shorthand Reporter
No. 7778.

1 APPEARANCES:

2
3 For Plaintiff Waymo LLC:

4
5 QUINN EMANUEL URQUHART & SULLIVAN LLP

6 BY: JORDAN R. JAFFE, ESQ.

7 JOHN McCAULEY, ESQ.

8 50 California Street, 22nd Floor

9 San Francisco, California 94111

10 (415) 498-0556

11 jordanjaffe@quinnemanuel.com

12 johnmccauley@quinnemanuel.com

13
14 For Defendants Uber Technologies, Inc., Ottomotto LLC;
15 Otto Trucking LLC:

16
17 MORRISON & FOERSTER

18 BY: RUDY Y. KIM, ESQ.

19 755 Page Mill Road

20 Palo Alto, California 94304

21 (650) 813-5869

22 rudykim@mofo.com

Also Present:

VERITEXT LEGAL SOLUTIONS

ROMANO PERASA, VIDEOGRAPHER

(415) 274-9977

SFDepo@veritext.com

AARON BERGSTROM, Senior Counsel -
Litigation, San Francisco for Uber
Technologies.

--oOo--

I N D E X

EXAMINATION BY:	PAGE
MR. JAFFE	9, 102, 224
MR. KIM	177

--oOo--

E X H I B I T S

EXHIBIT	DESCRIPTION	PAGE
PLAINTIFF'S:		
Exhibit 150	Hand-drawn schematic by witness; 1 page	20
Exhibit 151	Declaration of James Haslim; 14 pages	47
Exhibit 152	Supplemental Declaration of James Haslim; 15 pages	61
Exhibit 153	Defendants' list of servers, officers, directors and employees; 6 pages	105

1	E X H I B I T S (Cont'd)		
2	EXHIBIT	DESCRIPTION	PAGE
3	Exhibit 154	E-mail chain of December 2016;	110
4		4 pages	
5			
6	Exhibit 155	Document entitled, "Exhibit B";	113
7		3pages	
8			
9	Exhibit 156	Fuji Data from Haslim Declaration	122
10		Exhibit B; 1 page	
11			
12	Exhibit 157	Document entitled, "Exhibit H";	138
13		19 pages	
14			
15	Exhibit 158	E-mail chain of April 2017;	148
16		1 page	
17			
18	Exhibit 159	E-mail chain of June 2016;	151
19		2 pages	
20			
21	Exhibit 160	E-mail chain of June 2016;	157
22		5 pages	
23			
24	Exhibit 161	Schematic of [REDACTED]	273
25		1 page	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

E X H I B I T S (Cont'd)

EXHIBIT	DESCRIPTION	PAGE
DEFENDANTS':		
Exhibit 1060	Chart from Haslim Declaration	177
	Exhibit B; 1 page	
Exhibit 1061	Exhibit I to Mr. Boehmke's	206
	Declaration; 12 pages	

--oOo--

1 THURSDAY, MAY 4, 2017; SAN FRANCISCO, CALIFORNIA;

2 10:16 A.M.

3 - - -

4 THE VIDEOGRAPHER: Good morning.

5 We are on the record at 10:16 a.m. on May 4th,
6 2017.

7 This is the videotaped deposition of
8 Mr. James Haslim.

10:16:44

9 My name is Ramon Perasa, here with our court
10 reporter, Anrae Wimberley. We are here from Veritext
11 Legal Solutions at the request of counsel for the
12 plaintiff.

10:16:48

10:16:51

10:16:54

10:16:54

13 This deposition is being held at Quinn Emanuel in
14 San Francisco.

10:16:57

10:16:58

15 The caption of this case is Waymo LLC versus
16 Uber Technologies. Case No. 3-17-cv-00939-WHA.
17 Please note that audio and video recording will
18 take place unless all parties have agreed to go
19 off the record. Microphones are sensitive and may
20 pick up whispers or private conversations.

10:17:03

10:17:12

10:17:15

10:17:18

10:17:19

21 At this time, counsel, please identify
22 yourselves for the record and state whom you
23 represent.

10:17:26

10:17:28

10:17:29

24 MR. JAFFE: Jordan Jaffe of Quinn Emanuel on
25 behalf of the plaintiff, Waymo.

10:17:29

10:17:29

1 MR. McCAULEY: John McCauley of Quinn Emanuel also 10:17:29
2 on behalf of Waymo. 10:17:36
3 MR. KIM: Rudy Kim of Morrison Foerster on behalf 10:17:39
4 of Uber Technologies and Auto Moto LLC. 10:17:42
5 MR. BERGSTROM: Aaron Bergstrom with Uber. 10:17:44
6 THE VIDEOGRAPHER: The court reporter may now 10:17:46
7 swear in the witness. 10:17:47
8 JAMES HASLIM,
9 sworn as a witness by the Certified
10 Shorthand Reporter, testified as follows:
11 EXAMINATION 10:17:47
12 BY MR. JAFFE: 10:17:47
13 Q. Good morning. 10:18:09
14 A. Good morning. 10:18:10
15 Q. Welcome back. We've spoken before. 10:18:14
16 This is your second deposition in this case; 10:18:19
17 right? 10:18:19
18 A. Right. 10:18:19
19 Q. Did you have time to prepare -- realize a 10:18:28
20 short amount of time -- to prepare with your counsel 10:18:30
21 for purposes of today's deposition? 10:18:33
22 A. Yes. 10:18:33
23 Q. Is there any reason you can't give your full 10:18:35
24 and truthful testimony today? 10:18:37
25 A. No. 10:18:37

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. Just like in your last deposition, you 10:18:40
2 understand that you are under oath; correct? 10:18:41
3 A. Correct. 10:18:41
4 Q. All right. Last time -- in your last 10:18:53
5 deposition, I asked you when was the first time you 10:18:56
6 ever spoke with lawyers from Morrison & Foerster. And 10:18:59
7 my recollection is you said sometime in 2017; is that 10:19:04
8 right? 10:19:04
9 A. Yes. 10:19:05
10 Q. I have a different question. 10:19:08
11 Are you familiar with a firm called Stroz 10:19:11
12 Friedberg? 10:19:13
13 A. I have a little familiarity. I believe Stroz 10:19:17
14 Friedberg is the firm that is taking laptops and 10:19:22
15 computers and imaging hard drives for us. 10:19:25
16 Q. When was the first time you ever spoke with 10:19:28
17 someone from Stroz Friedberg or a representative of 10:19:31
18 Stroz Friedberg? 10:19:32
19 A. First time I spoke with someone from Stroz -- 10:19:35
20 I don't know how to pronounce the name -- Friedberg 10:19:37
21 would be when I handed off my two laptops to them. 10:19:44
22 Q. Approximately when in time was that? 10:19:46
23 A. That would be approximately mid April, around 10:19:49
24 the time of my deposition. 10:19:53
25 Q. Of this year? 10:19:56

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1	A. Of this year.	10:19:56
2	Q. Did you speak with anyone from Stroz	10:20:00
3	Friedberg as part of the due diligence process for	10:20:04
4	Uber buying Otto?	10:20:06
5	A. No.	10:20:06
6	Q. Do you know if anyone spoke with Stroz	10:20:11
7	Friedberg during that due diligence process on the	10:20:15
8	LiDAR team?	10:20:17
9	A. No.	10:20:17
10	Q. That wasn't something that you were aware of?	10:20:20
11	A. Correct.	10:20:20
12	Q. Okay. All right. I'm going to go	10:20:33
13	through -- you understand that we had a preliminary	10:20:35
14	injunction hearing yesterday with the judge; right?	10:20:39
15	A. Right.	10:20:39
16	Q. There are certain questions that the judge	10:20:42
17	had that I'm going to get your testimony on so we can	10:20:45
18	then report back to the judge, just so we're all kind	10:20:47
19	of clear.	
20	One of the questions that the judge had was,	10:20:50
21	"What is the significance of using 64 channels in a	10:20:54
22	LiDAR as opposed to 65 or so on?"	10:20:59
23	Can you answer that, please?	10:21:01
24	A. Yes. I'm trying to collect my thoughts on	10:21:04
25	that. I don't have a strong feeling that there is a	10:21:06

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 strong significance to the specific number of 10:21:09
2 channels. [REDACTED] 10:21:13
3 [REDACTED] 10:21:17
4 [REDACTED] 10:21:21
5 [REDACTED] 10:21:26
6 Q. What is the significance of the powers of 10:21:28
7 two? 10:21:29
8 A. The significance of powers of two can be 10:21:32
9 assessed to the convenience of using computing devices 10:21:41
10 that are binary in nature that have data fields that 10:21:44
11 are some fixed number of bits wide, and it just 10:21:48
12 becomes convenient in that aspect. 10:21:50
13 Q. Thank you. All right. 10:21:55
14 Does Mr. Levandowski have an assistant? 10:22:00
15 A. I don't know if he has an assistant. 10:22:03
16 Q. Does he have a secretary? 10:22:05
17 A. I'm not sure. 10:22:06
18 Q. Has he ever had an assistant or a secretary, 10:22:10
19 to your knowledge? 10:22:12
20 A. Yes. Early -- I'm not sure when this was no 10:22:18
21 longer the case. He had an assistant that I believe 10:22:22
22 he shared with Lior Ron. I believe the assistant's 10:22:28
23 name is Mason Feldman. 10:22:30
24 Q. And what is the time period that Mr. Feldman 10:22:35
25 was Mr. Levandowski's assistant? 10:22:40

Page 12

1 A. My recollection is shaky. I want to say 10:22:43
2 shortly after joining Otto, I can recall Mason being 10:22:49
3 around at that time frame. And when it ended I'm not 10:22:53
4 sure, but that would have been maybe in the 10:22:56
5 past -- let me try to bookend this -- past -- this is 10:23:03
6 very hard because I don't remember. I believe as 10:23:07
7 shortly as a few, couple months ago, perhaps. And 10:23:13
8 this could also be found pretty readily. Mr. Feldman 10:23:17
9 was reporting to a facilities manager. 10:23:22
10 Q. Does Mr. Feldman still work for Uber or Otto? 10:23:26
11 A. Yes. 10:23:27
12 Q. What does he do now? 10:23:29
13 A. I understand he's working for a facilities 10:23:31
14 manager. 10:23:33
15 Q. When you say "facilities manager," what do 10:23:35
16 you mean by that? 10:23:36
17 A. I wish I knew better in detail, but I don't. 10:23:41
18 We have somebody on staff that I believe would be 10:23:44
19 called a facilities manager, perhaps manages what goes 10:23:48
20 on with buildings, facilities' needs, be it the need 10:23:55
21 for air-conditioning, a repair, something of that 10:23:59
22 nature. 10:23:59
23 Q. Where is Mr. Feldman located? 10:24:02
24 A. To my knowledge, he has a desk in our offices 10:24:07
25 in San Francisco. 10:24:09

1 Q. Other than Mr. Feldman, who are you aware of 10:24:20
2 that most closely works with Mr. Levandowski on a 10:24:27
3 day-to-day basis? 10:24:29
4 A. On a day-to-day basis, the only other 10:24:32
5 employee I'm aware of that works closely with him I 10:24:35
6 would say is Eric Meyhofer. 10:24:44
7 Q. Mr. Meyhofer, how do you know him? 10:24:50
8 A. Eric is my boss. 10:24:52
9 Q. How long have yourself and Mr. Meyhofer known 10:24:59
10 each other? 10:25:00
11 A. I met Eric Meyhofer -- I don't remember when, 10:25:09
12 but I can tell you it was when he visited Tyto LiDAR 10:25:13
13 with Scott Boehmke, and they visited to evaluate our 10:25:20
14 products. 10:25:21
15 Q. And you said you didn't remember when this 10:25:26
16 meeting was. 10:25:30
17 Can you give it a year? 10:25:31
18 A. It was prior to acquisition by Otto, but a 10:25:40
19 significant time went by between our meeting and being 10:25:46
20 acquired by Otto. So I don't even want to hazard the 10:25:52
21 year, because it could be off. 10:25:55
22 Q. So there was a meeting between Mr. Meyhofer, 10:26:03
23 Mr. Boehmke and Tyto LiDAR; is that right? 10:26:08
24 A. That's right. 10:26:09
25 Q. And it was sometime before the acquisition of 10:26:12

1	Tyto by Otto; correct?	10:26:15
2	A. Correct.	10:26:15
3	Q. Who else was at that meeting?	10:26:19
4	A. That would have included Brent Schwarz. I'm	10:26:26
5	not certain whether Mike Karasoff would have been at	10:26:30
6	that meeting as well.	10:26:32
7	Q. Anybody else?	10:26:32
8	A. I don't recall.	10:26:33
9	Q. Was Mr. Levandowski at that meeting?	10:26:37
10	A. Not that I recall.	10:26:38
11	Q. You're not sure, though?	10:26:41
12	A. I'm fairly sure that he was not. That would	10:26:45
13	have been awkward.	10:26:48
14	Q. You said, "That would have been awkward."	10:26:50
15	Why do you say that?	10:26:52
16	A. Well, he wasn't an employee of Tyto.	10:26:57
17	Q. Mr. Levandowski.	10:26:57
18	A. That's what I meant.	10:26:59
19	Q. So you're saying it would have been awkward	10:27:02
20	for Mr. Levandowski to be involved in a meeting	10:27:06
21	between Tyto and Uber because he wasn't involved in	10:27:10
22	Tyto; is that right?	10:27:12
23	A. It would be awkward because he was not an	10:27:14
24	employee, yes.	10:27:15
25	Q. So I see you changed words there a little	10:27:17

1 bit -- 10:27:17

2 A. I did. 10:27:19

3 Q. -- and I just want to clarify that. 10:27:20

4 Why did you change -- my question was about 10:27:23

5 whether he was involved, and you answered about 10:27:26

6 whether he was an employee. 10:27:27

7 Why did you do that? 10:27:28

8 A. Because I would need clarification on the 10:27:31

9 word "involved." We would occasionally have dinner, 10:27:38

10 chat, see how the business was going on a friendly 10:27:41

11 term. 10:27:42

12 Q. What is your understanding as to 10:27:43

13 Mr. Levandowski's involvement in Tyto LiDAR? 10:27:48

14 A. My understanding of his involvement with Tyto 10:27:53

15 LiDAR was he was providing us a place of work when we 10:27:58

16 were still Odin Wave, early -- when we were getting 10:28:02

17 started. He sourced contract employees. He was a 10:28:11

18 friend who would stop by occasionally for chats. 10:28:15

19 Q. Chats about what? 10:28:16

20 A. What we're working on, what would the next 10:28:21

21 product be if we finished the current product. 10:28:24

22 Q. Why were you chatting with Mr. Levandowski 10:28:26

23 about what you were working on at Tyto LiDAR? 10:28:29

24 A. I couldn't tell you -- if your question is 10:28:34

25 why that was appropriate or why that was something 10:28:41

1 that was to discuss, the question came up, he would 10:28:45
2 ask, we would talk. 10:28:47
3 Q. Was there anyone else that you would have 10:28:50
4 these kind of chats with, that weren't employees, 10:28:53
5 about your work at Tyto? 10:28:58
6 A. Not that I recall. 10:29:02
7 Q. Did you ever raise to any of your fellow 10:29:05
8 employees at Tyto LiDAR, hey, why are we talking with 10:29:10
9 Mr. Levandowski about the work that we're doing? 10:29:14
10 A. No. 10:29:14
11 Q. Never came up? 10:29:16
12 A. Not to my recollection. 10:29:17
13 Q. You never asked anyone? 10:29:18
14 A. No. 10:29:18
15 Q. You didn't think it was odd that this person 10:29:21
16 who doesn't work for the company was talking about 10:29:23
17 your work with you? 10:29:24
18 A. No. 10:29:25
19 Q. Did you know that Mr. Levandowski was working 10:29:27
20 on LiDAR at Waymo at the time? 10:29:31
21 A. I knew he was working for Google at the time, 10:29:35
22 and I didn't know the details of what specifically he 10:29:39
23 was working on. 10:29:41
24 Q. Have you ever spoken with Mr. Levandowski 10:29:44
25 about [REDACTED] 10:29:51

1 A. Yes. 10:29:51

2 Q. When? 10:29:52

3 A. This would be some date, I can't recall when, 10:30:01
4 at Tyto LiDAR. 10:30:05

5 Q. And what did you guys talk about? 10:30:12

6 A. We talked about our need to design our own 10:30:15
7 fiber laser in order to eliminate costs and lead time. 10:30:21
8 And he gave me what I would call a tech tutorial on 10:30:29
9 fiber lasers. 10:30:31

10 Q. What did he say? 10:30:35

11 A. I don't remember the words of our 10:30:37
12 conversation. 10:30:38

13 Q. Tell me everything you remember about that 10:30:40
14 conversation, please. 10:30:41

15 A. He -- trying to recall -- described a 10:30:53
16 schematic, a layout, an approach for [REDACTED]
[REDACTED] generally how they work. Told me 10:31:03
18 to go find a YouTube video from a professor on lasers 10:31:09
19 in general. I believe he recommended some suppliers. 10:31:18

20 Q. Who are the suppliers? 10:31:20

21 A. I believe he recommended [REDACTED]
[REDACTED] And I believe he recommended [REDACTED] 10:31:41

23 Q. And [REDACTED] that's the same vendor used for 10:31:47
24 the fiber in the Spider design; right? 10:31:51

25 A. Yes. 10:31:51

1 Q. Sorry I interrupted. 10:31:55

2 Are you finished telling me everything that 10:31:57

3 you remember about that conversation? 10:31:58

4 MR. JAFFE: Can you get me a piece of paper? 10:32:07

5 MR. McCAULEY: (Hands document.) 10:32:15

6 THE WITNESS: I recall he was telling me to hurry 10:32:18

7 up and order the [REDACTED] because they were long 10:32:25

8 lead items. I think he suggested some [REDACTED]

[REDACTED]

[REDACTED] I don't recall any more 10:32:46

11 than that. 10:32:48

12 BY MR. JAFFE: 10:32:48

13 Q. Thank you. 10:32:49

14 So we talked about that conversation, and you 10:32:53

15 said you didn't remember when it was. I just want to 10:32:56

16 see if we can bound that time with any more 10:32:59

17 specificity. 10:33:00

18 A. Ooh. I recall it occurred at our -- after we 10:33:09

19 moved out of Berkeley, so this was in San Leandro. 10:33:16

20 This would have been prior to my starting to develop 10:33:22

21 the fiber lasers, so it had to be relatively 10:33:25

22 shortly -- I would say -- this is all qualitative, I'm 10:33:32

23 sorry -- shortly after that move to San Leandro. 10:33:34

24 Q. All right. So based on those kind of 10:33:36

25 considerations, what approximate timeline did you guys 10:33:42

1 move to San Leandro? 10:33:43

2 A. There's a lot of years between here and 10:33:45

3 there. It's tractable [sic] from other information 10:33:52

4 sources, but I don't have it in my head right now. 10:33:55

5 Q. 2015? 10:33:56

6 A. Could be. I don't know. 10:33:57

7 Q. So sitting here today, you can't give me any 10:34:00

8 more specificity as to the time of that conversation? 10:34:03

9 A. I cannot. 10:34:04

10 Q. I'm going to hand you this. 10:34:06

11 MR. JAFFE: And we're going to mark it as -- now 10:34:09

12 I've lost what exhibit we're at, so I'm just going to 10:34:14

13 say 150 so we don't run over another exhibit.

14 (Plaintiff's Exhibit 150 was marked.)

15 BY MR. JAFFE:

16 Q. Can you please draw the schematic that 10:34:17

17 Mr. Levandowski provided to you during that 10:34:20

18 conversation. And here I'll hand you my pen. 10:34:25

19 A. I can do my best. 10:34:26

20 So I want to state, as I'm going to attempt 10:34:56

21 to do this for you, that there is a very real risk 10:35:00

22 that I'm going to take information that I know now, 10:35:03

23 after having built the fiber laser, and get that 10:35:06

24 somehow accidentally contaminated into a vague 10:35:13

25 recollection of what schematic he gave me. 10:35:16

1 Q. I just want your best recollection of the 10:35:18
2 schematic that he gave you. 10:35:19
3 A. I understand that.
4 Q. That's all I'm asking for. 10:35:21
5 A. I understand that. 10:35:23
6 (Witness draws diagram.) 10:35:31
7 (Pause in proceedings.)
8 MR. KIM: Just going to object on form 10:35:39
9 grounds here, for the record. 10:35:41
10 THE WITNESS: Okay. I think this is the best 10:38:17
11 of my recollection. I put a note on here there's [REDACTED]
[REDACTED] I don't know what the order was in his 10:38:24
13 recommendation. 10:38:25
14 BY MR. JAFFE:
15 Q. Can I take a look at it? 10:38:31
16 A. Yes. And I've drawn [REDACTED] And I 10:38:35
17 don't know if he recommended [REDACTED] And I can 10:38:37
18 explain any abbreviations. 10:38:39
19 Q. Sure. 10:38:40
20 So I'm just going -- just want to talk a 10:38:45
21 couple things here. 10:38:46
22 So [REDACTED] what does that stand for? 10:38:49
23 A. [REDACTED] 10:38:52
24 Q. Okay. And then [REDACTED] here on Exhibit 150, 10:38:54
25 what does that stand for? 10:38:56

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. [REDACTED] 10:39:04

2 Q. And in terms -- I again want to talk about 10:39:07

3 the timing of this briefly. 10:39:09

4 Do you know before -- whether it was before 10:39:12

5 or after 2011? 10:39:14

6 A. I don't know. 10:39:24

7 Q. So did you talk about [REDACTED]

[REDACTED] at this time? 10:39:40

9 A. I don't recall. 10:39:41

10 Q. Did you talk about [REDACTED] 10:39:44

11 at this time? 10:39:45

12 A. Yes. 10:39:46

13 Q. What did you talk about? 10:39:48

14 A. We talked about the need to optimize [REDACTED]

[REDACTED] and that that could be done 10:39:58

16 through an experimental approach. 10:40:01

17 Q. What was the experimental approach that 10:40:03

18 Mr. Levandowski told you about? 10:40:05

19 A. He didn't give a lot of detail. He called it 10:40:09

20 a [REDACTED] I can't remember how he called it. But as 10:40:15

21 he described it, [REDACTED]

[REDACTED]

[REDACTED] 10:40:34

1 Q. Did you and Mr. Levandowski discuss the 10:40:39
2 [REDACTED]
3 [REDACTED] 10:40:49
4 A. Possibly, yeah. I think there -- he may have 10:40:54
5 described the relationship between -- almost the 10:40:58
6 equivalence. [REDACTED]
7 [REDACTED]
8 [REDACTED] 10:41:07
9 Q. All right. After you had this conversation 10:41:16
10 with Mr. Levandowski, did you build the fiber laser 10:41:22
11 that he described? 10:41:23
12 A. Yeah. 10:41:23
13 Q. And when you had this conversation with him, 10:41:27
14 did you ask him whether he was allowed to reveal this 10:41:29
15 information to you? 10:41:31
16 A. No. 10:41:31
17 Q. Why not? 10:41:35
18 A. I can't recall what I was feeling or thinking 10:41:37
19 at the time, but this looks like general information 10:41:41
20 to me. 10:41:42
21 Q. So you didn't think, when he provided a 10:41:44
22 schematic on how to build a fiber laser, that this 10:41:48
23 could have been confidential information of Google? 10:41:52
24 A. I wouldn't say so. 10:41:54
25 Q. That didn't cross your mind? 10:41:56

Page 24

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. Right.

2 So, for example, the fiber laser in Spider, 10:43:08

3 [REDACTED] right? 10:43:10

4 A. Yes. 10:43:10

5 Q. And the [REDACTED]

6 [REDACTED] right? 10:43:16

7 A. Right. 10:43:16

8 Q. And it's [REDACTED] 10:43:20

9 right? 10:43:20

10 A. Right. 10:43:20

11 Q. And all those elements are described here in 10:43:23

12 Exhibit 150, the drawing that you described; right? 10:43:26

13 A. Right. 10:43:26

14 Q. And you determined [REDACTED]

15 [REDACTED] based on 10:43:39

16 Mr. Levandowski's kind of guidance with you on the 10:43:44

17 experimental approach to take; right? 10:43:46

18 MR. KIM: Objection; form. 10:43:48

19 THE WITNESS: I would say that his guidance on a 10:43:57

20 [REDACTED] put me on the right direction to 10:44:01

21 develop [REDACTED] for this, yes. 10:44:05

22 BY MR. JAFFE: 10:44:05

23 Q. So we talked about [REDACTED] 10:44:08

24 What was the next conversation that you had 10:44:10

25 with Mr. Levandowski about LiDAR? 10:44:18

Page 25

Page 26

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. Do you remember anything else from 10:45:41
2 Mr. Levandowski in that conversation, anything else he 10:45:44
3 said about LiDAR or anything? 10:45:47

4 A. No. No. 10:45:48

5 Q. When is the next conversation you had? 10:45:50

6 A. I have no recollection of what the next 10:45:56
7 conversation was. 10:45:57

8 Q. When is the next conversation that you 10:45:59
9 recall?

10 MR. KIM: Objection; form. 10:46:03

11 THE WITNESS: I can't recall when these 10:46:05
12 conversations took place. I would say we had dinner 10:46:10
13 occasionally, and he would generally just ask how 10:46:14
14 we're doing. 10:46:15

15 [REDACTED] 10:46:25

[REDACTED]

[REDACTED] 10:46:25

18 LiDAR techniques? 10:46:28

19 MR. KIM: Objection; form. 10:46:42

20 THE WITNESS: At this point, I'm leaning towards 10:46:44
21 saying when I joined Otto. 10:46:46

22 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 10:46:54

1 A. It would have been something to the nature 10:47:01
2 that we need to take -- possibly take the Owl design 10:47:09
3 and convert that into a multichannel LiDAR sensor that 10:47:16
4 could be used on autonomous vehicles. 10:47:18

5 Q. And what did Mr. Levandowski say? 10:47:23

6 A. I think he wanted to know what the plan would 10:47:27
7 be. I had started -- had sometime in that time frame 10:47:33
8 started working on a CAD model for a design I was 10:47:36
9 going to propose. And at that time or at a later 10:47:45
10 time, we started to discuss two different design 10:47:49
11 approaches that looked promising to take. 10:47:53

12 Q. What were those two approaches? 10:47:55

13 A. One approach was to take the Owl and somehow 10:48:00
14 multiply the channels to get a multichannel LiDAR that 10:48:07
15 could be used on a truck. The other approach was to 10:48:10
16 basically take the Velodyne style of design and build 10:48:14
17 a sensor in that approach. 10:48:19

18 Q. Before we move forward with those two, you 10:48:25
19 said you had built a CAD design for something that you 10:48:29
20 were going to propose. 10:48:30

21 A. Yes. 10:48:30

22 Q. What was the name of that, just for purposes 10:48:34
23 of our conversation? 10:48:35

24 A. It had no name. Perhaps if I described it. 10:48:39

25 Q. Sure. 10:48:40

1 A. It was -- I intended to design a LiDAR sensor 10:48:47
2 similar to the Owl, based on the design of the Owl 10:48:51
3 optical cavity. It was a bistatic LiDAR design. It 10:48:57
4 would incorporate eight laser sources that would 10:49:00
5 transmit out a transmit lens. 10:49:03

6 It would have eight avalanche photodiodes 10:49:08
7 that would receive through the receive lines. That 10:49:14
8 would project onto a mirror that could spin that could 10:49:18
9 help scan those beams. It was intended in my mind to 10:49:26
10 augment something like a Velodyne sensor to provide a 10:49:29
11 longer range, tighter packed field of view. 10:49:32

12 Q. So what you were coming up with was a 10:49:36
13 long-range sensor that would supplement a mid-range 10:49:42
14 sensor on a self-driving car; is that fair? 10:49:46

15 MR. KIM: Objection; form. 10:49:47

16 THE WITNESS: It was meant to supplement the 10:49:49
17 Velodyne-type sensor, yes. 10:49:53

18 BY MR. JAFFE: 10:49:53

19 Q. Did you have any discussions with 10:49:54
20 Mr. Levandowski in coming up with that design? 10:49:59

21 A. I don't recall having any discussion with 10:50:08
22 Anthony Levandowski regarding this design. I want to 10:50:11
23 say that idea came from earlier talks with Eric 10:50:15
24 Meyhofer and Scott Boehmke when they visited. At that 10:50:20
25 time, Brent Schwarz was proposing to them that we had 10:50:28

1 a sensor that was capable of long-range performance 10:50:31
2 and that they would need a sensor for long-range 10:50:35
3 viewing on an autonomous vehicle. 10:50:40

4 And so our angle with Uber at the time was we 10:50:44
5 think we can build such a sensor, but we're not 10:50:47
6 working on it right now. Our company is open for 10:50:51
7 acquisition. 10:50:55

8 Q. So the sensor that you were coming up with, 10:51:00
9 that was going to be a bistatic design; right? 10:51:03

10 A. Yes. 10:51:05

11 Q. At some point, Spider came about and 10:51:12
12 transformed it to a monostatic design; right? 10:51:15

13 A. True. 10:51:17

14 Q. Do you know who was responsible for the 10:51:19
15 change from what you were coming up with, which was a 10:51:22
16 bistatic design, to the monostatic design in Spider? 10:51:26

17 A. I don't recall who among the team was 10:51:34
18 involved in our conversations first to move away from 10:51:39
19 supplemental design to one design that would cover all 10:51:44
20 the way from directly in front of the vehicle out to 10:51:47
21 long range. But that was a decision that was made 10:51:50
22 that pretty much negated the proposal I had made of 10:51:56
23 using a tight-packed purely long-range sensor. 10:52:00

24 Q. So you shifted into the passive voice there. 10:52:05
25 You're talking about -- who is making these 10:52:07

1 decisions? 10:52:08

2 A. Exactly. I'm trying to recall. I don't 10:52:10

3 know, of all the people that were involved, who was in 10:52:14

4 those conversations. So it would include me. It 10:52:17

5 would include most likely Anthony Levandowski. I 10:52:23

6 believe it would also include Daniel Gruver. And I'm 10:52:28

7 not sure if there's anyone else. 10:52:30

8 Q. And do you know, in the context of those 10:52:35

9 communications, who just said, Hey, James, your design 10:52:44

10 looks great, but we're going to go with the monostatic 10:52:46

11 design and we think it's better? 10:52:50

12 MR. KIM: Objection; form. 10:52:50

13 THE WITNESS: The monostatic design that uses one 10:52:56

14 lens for transmit and receive, I don't know who came 10:52:59

15 up with that. At some point I saw it, seemed okay to 10:53:05

16 me, it seemed compact, let's use it. 10:53:09

17 BY MR. JAFFE: 10:53:09

18 Q. So you don't know -- you have no information 10:53:12

19 of who came up with the monostatic design in Spider? 10:53:15

20 A. True. 10:53:16

21 Q. Okay. So we were still -- going back to our 10:53:25

22 chron of conversations with Mr. Levandowski, when is 10:53:28

23 the next conversation that you had with 10:53:31

24 Mr. Levandowski about LiDAR that you can recall? 10:53:34

25 A. It's very hard for me to recall specific 10:53:43

1 conversations, especially in sequence. At this point, 10:53:47
2 I report to Anthony Levandowski. 10:53:50
3 Q. And just for purposes of the record, when 10:53:52
4 you're talking about "this point," what date are you 10:53:54
5 talking about? 10:53:55
6 A. I'm talking about immediately following 10:53:56
7 Tyto's acquisition by Otto -- or I should say Otto's 10:54:03
8 acquisition of Tyto. We joined -- at that time, I 10:54:08
9 reported to Anthony Levandowski. There would be 10:54:12
10 regular staff meetings. Since my team is working on 10:54:19
11 LiDAR, LiDAR would definitely come up in conversations 10:54:22
12 with him, at that point, on a probably fairly routine 10:54:25
13 basis, like weekly basis. 10:54:28
14 Q. And what did you and Mr. Levandowski discuss? 10:54:31
15 A. Progress, approach, schedule or timing, 10:54:39
16 volumes. 10:54:41
17 Q. Can you tell me any more specifics about the 10:54:44
18 routine and regular conversations you were having with 10:54:48
19 Mr. Levandowski about LiDAR? 10:54:49
20 A. He would ask about what the design was 10:54:56
21 looking like, how we were approaching it. Beyond 10:55:00
22 that, I don't recall specifics of our conversations. 10:55:03
23 Q. So sitting here today, in this time period 10:55:06
24 that you're talking about, after you joined Otto in 10:55:10
25 May of 2016, you would have regular conversations with 10:55:15

1 Mr. Levandowski about LiDAR, but you can't recall any 10:55:18
2 specifics of those conversations; is that fair? 10:55:21
3 A. That's fair to say I cannot recall beyond the 10:55:26
4 details I already told you. 10:55:28
5 Q. I see. 10:55:29
6 When is the next -- moving forward in time 10:55:34
7 here, when is the next substantive conversation with 10:55:38
8 Mr. Levandowski about LiDAR that you recall? 10:55:40
9 A. I don't know. 10:55:56
10 Q. You don't know? 10:55:57
11 A. I don't know. 10:55:57
12 Q. I'm not trying to do a memory test here. If 10:56:02
13 there's just too many conversations for you to recall, 10:56:05
14 that's fine, and you can just tell me that. But 10:56:08
15 otherwise I'm just going to keep asking. 10:56:10
16 MR. KIM: Objection; form. 10:56:10
17 THE WITNESS: Most of our conversations, that is 10:56:21
18 between me and Anthony Levandowski, were not 10:56:24
19 substantive in LiDAR design per se. So I'm having a 10:56:30
20 hard time remembering further conversations or 10:56:35
21 specifics. 10:56:35
22 Most of the time, he wanted to know where 10:56:38
23 we were in our progress, and he may have asked 10:56:41
24 what the design was shaping up like. 10:56:44
25 I do recall one more. 10:56:49

1 He was visiting Uber. He got me on the phone 10:56:56
2 and was starting to describe using eight fiber 10:57:02
3 lasers -- that's right -- eight fiber lasers, 10:57:08
4 splitting their outputs to multiply the number of 10:57:12
5 channels and then routing a fiber from each fiber 10:57:17
6 laser into a number of optical cavities. 10:57:24
7 There was also, at that time frame, a 10:57:26
8 document published or shared with the team. I think 10:57:31
9 that came from Scott Boehmke. So this would be 10:57:38
10 substantive in terms of shaping up what Spider would 10:57:43
11 eventually become. 10:57:44
12 BY MR. JAFFE: 10:57:44
13 Q. And you said Mr. Levandowski called you from 10:57:48
14 Uber in Pittsburgh; is that right? 10:57:53
15 A. My understanding he was either at Uber or in 10:57:55
16 transit to or from Uber in Pittsburgh. 10:57:58
17 Q. Approximately what time period was this? 10:58:01
18 A. This would be relatively early in the 10:58:04
19 development of the Spider. Beyond that, I would defer 10:58:08
20 to e-mails. I don't remember. 10:58:10
21 Q. When you say you would "defer to e-mails," 10:58:12
22 are there e-mails about this conversation? 10:58:15
23 A. There were e-mails -- I should say there was 10:58:19
24 an e-mail with a document that was published that 10:58:24
25 contained the substance of what he was describing. 10:58:27

1 Q. What was the name of that document? 10:58:29

2 A. I think it had the name like LiDAR Thoughts. 10:58:36

3 Q. And that was authored by Mr. Levandowski? 10:58:39

4 MR. KIM: Objection; form. 10:58:39

5 THE WITNESS: I don't know that Anthony authored 10:58:43

6 that or if Scott authored that. 10:58:46

7 BY MR. JAFFE: 10:58:46

8 Q. Mr. Levandowski had design input into what -- 10:58:49

9 the LiDAR described in that document, though; is that 10:58:53

10 fair? 10:58:54

11 MR. KIM: Objection; form. 10:58:54

12 THE WITNESS: That's a good question. He 10:58:58

13 described it to me, but I don't know whether he was 10:59:02

14 describing his idea or Scott's idea. I don't know. 10:59:06

15 BY MR. JAFFE: 10:59:06

16 Q. So just to back up, Mr. Levandowski called 10:59:14

17 you and provided some thoughts on how to do the fiber 10:59:20

18 laser design in Spider. And he was describing 10:59:23

19 something that was in a document called LiDAR 10:59:25

20 Thoughts; is that fair? 10:59:27

21 A. He was describing something that was later 10:59:30

22 published in an e-mail with LiDAR Thoughts. 10:59:34

23 Q. And at this time, Otto was an independent 10:59:41

24 company; right? 10:59:43

25 A. Yes. 10:59:43

1 Q. Why was Mr. Levandowski at Uber? 10:59:46

2 A. As I understood it, we were considering 10:59:52

3 selling our LiDAR sensors to Uber. 10:59:56

4 Q. When you say "As I understood it," what was 10:59:59

5 the basis for that understanding? 11:00:01

6 MR. KIM: Just caution you not to reveal 11:00:04

7 privileged communications with lawyers. If you can 11:00:07

8 answer it without doing that, you can do so. 11:00:10

9 THE WITNESS: Um-hum. 11:00:11

10 I don't recall the exact timing and 11:00:15

11 sequencing. At some point, engineers from Uber 11:00:23

12 Pittsburgh visited our office. And I have a vague 11:00:33

13 recollection Anthony telling us to be helpful, to 11:00:41

14 share information freely. It seemed almost like a 11:00:48

15 partnership. Around the time, Anthony put an 11:00:56

16 e-mail to the entire company saying we were going 11:00:59

17 to be working with them, providing sensor to them, 11:01:03

18 possibly involving autonomous software as well. 11:01:09

19 MR. JAFFE: Counsel, I don't think that e-mail has 11:01:12

20 been produced, and we ask that it be produced 11:01:14

21 immediately. 11:01:16

22 MR. KIM: I don't know which e-mail that 11:01:17

23 specifically refers to. I believe we produced a bunch 11:01:21

24 of e-mails that are similar to that description, but 11:01:24

25 we can confirm. 11:01:26

1 MR. JAFFE: Appreciate that. 11:01:28

2 BY MR. JAFFE: 11:01:28

3 Q. So your understanding that Otto was going to 11:01:32

4 be providing LiDAR technology to Uber came from 11:01:35

5 Mr. Levandowski; is that true? 11:01:37

6 A. Yes. 11:01:38

7 Q. And when Otto was in discussions to buy Tyto, 11:01:50

8 did you know at that time, as a Tyto employee, that 11:01:53

9 you were going to be supplying LiDAR to Uber? 11:01:58

10 A. No. 11:01:58

11 Q. It was only after you joined Otto that you 11:02:03

12 found out that Otto was going to be supplying LiDAR to 11:02:06

13 Uber; is that right? 11:02:07

14 A. Yes. 11:02:07

15 Q. Did that surprise you? 11:02:10

16 A. Yes. 11:02:10

17 Q. Why? 11:02:12

18 A. I had a nice meeting with Eric Meyhofer and 11:02:17

19 Scott Boehmke when we were at Tyto. A long time had 11:02:22

20 transpired, and it was a pleasant surprise to see that 11:02:25

21 we were going to be making LiDAR sensors for them 11:02:29

22 after all. 11:02:30

23 Q. So it was a pleasant surprise? 11:02:32

24 A. It was. 11:02:33

25 Q. I see. I see. 11:02:34

1 All right. Are there any other substantive 11:02:40
2 conversations regarding LiDAR with Mr. Levandowski 11:02:43
3 that you can recall? 11:02:47
4 MR. KIM: Objection; form. 11:02:50
5 THE WITNESS: I'm not sure I would consider the 11:03:11
6 pivot to Fuji a conversation that was substantive, but 11:03:18
7 he did provide input into the Fuji and that he wanted 11:03:26
8 to make sure it first operated as well or better than 11:03:33
9 Velodyne and suggested that we ignore concerns from 11:03:38
10 the Pittsburgh office regarding size and weight and 11:03:41
11 not to be constrained by that. 11:03:43
12 BY MR. JAFFE: 11:03:43
13 Q. Anything else? 11:03:44
14 A. I don't recall. 11:03:52
15 Q. Just to be clear, is there any other 11:04:00
16 conversation that you had with Mr. Levandowski about 11:04:04
17 LiDAR design that you can recall, sitting here today? 11:04:10
18 MR. KIM: Objection; form. 11:04:11
19 THE WITNESS: I don't recall any more. 11:04:48
20 BY MR. JAFFE: 11:04:48
21 Q. No more? 11:04:53
22 A. I don't recall any more. I'm sorry. 11:04:56
23 Q. And this is apart from the regular 11:04:58
24 conversations that you had with Mr. Levandowski 11:05:00
25 regarding status and updates; right? 11:05:03

1 A. This would be distinct from status and 11:05:08
2 updates. 11:05:09
3 Q. Okay. I just want that to be clear. 11:05:10
4 Okay. When you joined Tyto, when did you 11:05:14
5 first hear that Mr. Levandowski would be your boss on 11:05:19
6 the LiDAR team? 11:05:21
7 A. I believe my offer letter for joining Otto 11:05:28
8 would have indicated that he would be my manager, I 11:05:33
9 believe. 11:05:33
10 Q. So Mr. Levandowski decided that you 11:05:41
11 were -- that he was -- you were going -- excuse me -- 11:05:44
12 that he was going to be your boss on the LiDAR team 11:05:47
13 when you joined Otto; right? 11:05:48
14 A. I presumed that, yes. 11:05:51
15 Q. Do you think the LiDAR team needed 11:05:56
16 Mr. Levandowski to accomplish its goals? 11:06:01
17 MR. KIM: Objection; form. 11:06:01
18 THE WITNESS: Honestly, no. 11:06:08
19 BY MR. JAFFE: 11:06:08
20 Q. Why not? 11:06:09
21 A. We have a team that probably could have come 11:06:13
22 up with a number of different LiDAR sensors without 11:06:17
23 his input. 11:06:18
24 Q. But that's not what happened; right? 11:06:20
25 A. That's not what happened. 11:06:22

1 Q. So when was the first time you worked with 11:06:32
2 Max Levandowski on LiDAR? 11:06:35
3 A. That would be immediately following my 11:06:38
4 joining Otto. 11:06:39
5 Q. And what is your working relationship with 11:06:43
6 Max Levandowski? 11:06:45
7 A. He reports to me. 11:06:47
8 Q. He reports to you. I see. 11:06:49
9 So, actually, let's go back in time to when 11:06:56
10 you first joined Otto. 11:06:58
11 And you're having regular interactions with 11:07:00
12 Mr. Levandowski; right? 11:07:02
13 A. Um-hum. 11:07:03
14 Q. What devices are you aware of him using at 11:07:06
15 that time in terms of computers? 11:07:09
16 A. I believe he had a laptop, probably a 11:07:12
17 Macintosh. 11:07:14
18 Q. Is that his personal laptop? 11:07:17
19 MR. KIM: Objection; form. 11:07:17
20 THE WITNESS: I don't know. 11:07:19
21 BY MR. JAFFE: 11:07:19
22 Q. What about a phone? Was he using a phone? 11:07:22
23 A. Sure. I don't know if he had one phone, 11:07:24
24 multiple phones. I didn't really pay attention, but 11:07:27
25 I'm sure he had a phone. 11:07:28

1 Q. How often did Mr. Levandowski bring his 11:07:32
2 personal laptop to work with him? 11:07:35
3 MR. KIM: Objection; form. 11:07:35
4 THE WITNESS: I couldn't possibly know. 11:07:37
5 BY MR. JAFFE: 11:07:37
6 Q. Every day? 11:07:39
7 MR. KIM: Objection; form. 11:07:39
8 THE WITNESS: The reason I couldn't possibly know 11:07:42
9 is I don't know whether the laptop he may have carried 11:07:45
10 was his personal laptop or the work laptop. 11:07:48
11 BY MR. JAFFE: 11:07:48
12 Q. I see. All right. So let's just talk about 11:07:51
13 the one laptop that you know about. 11:07:53
14 How often did he bring that laptop to work 11:07:55
15 with him? 11:07:56
16 MR. KIM: Objection; form. 11:07:56
17 THE WITNESS: I don't know. I have no idea. 11:08:02
18 BY MR. JAFFE: 11:08:02
19 Q. You saw him at work with the personal laptop; 11:08:06
20 right? 11:08:06
21 A. I'm sure I've seen him at work with a laptop. 11:08:10
22 Q. And that was a regular occurrence; right? 11:08:12
23 MR. KIM: Objection; form. 11:08:14
24 THE WITNESS: I hardly paid attention to how often 11:08:18
25 he was carrying a laptop. 11:08:20

1 BY MR. JAFFE: 11:08:20

2 Q. I understand you're saying that you hardly 11:08:23

3 pay attention to this. The judge specifically asked 11:08:25

4 to find out this information, and that's the reason 11:08:27

5 I'm asking this question. I just want that to be 11:08:30

6 clear. 11:08:31

7 How often -- so let me just pause there, 11:08:34

8 okay, and I'm going to ask my question again. 11:08:36

9 How often did you see Anthony Levandowski 11:08:38

10 with his Macintosh laptop at Otto? 11:08:42

11 MR. KIM: Objection; form. 11:08:42

12 THE WITNESS: I don't recall how often. 11:08:48

13 BY MR. JAFFE: 11:08:48

14 Q. Every day? 11:08:53

15 MR. KIM: Objection; form. 11:08:53

16 THE WITNESS: Not necessarily. 11:08:55

17 BY MR. JAFFE: 11:08:55

18 Q. Four, five days a week; is that fair? 11:08:58

19 A. I don't know. 11:09:03

20 Q. You're not willing to tell me any sort of 11:09:06

21 numbers? 11:09:07

22 MR. KIM: Objection; form. 11:09:07

23 THE WITNESS: I can't give you any number for how 11:09:12

24 often I can recall seeing him carrying a laptop. And 11:09:16

25 I would also mention he spent a lot of time traveling 11:09:20

1 to the Pittsburgh office, and I would have no idea how 11:09:23
2 often he carried a laptop for that as well. 11:09:26
3 BY MR. JAFFE: 11:09:26
4 Q. Fair. 11:09:27
5 I'm not trying to ask you -- I'm only asking 11:09:28
6 for your understanding based on your interactions with 11:09:31
7 him. 11:09:32
8 Understand? 11:09:32
9 A. Understand. 11:09:33
10 Q. Would you agree that you probably saw 11:09:36
11 Mr. Levandowski with his laptop three days a week, 11:09:41
12 approximately? 11:09:42
13 MR. KIM: Objection to form. Same objection. 11:09:49
14 THE WITNESS: I really don't recall. I really do 11:09:51
15 not recall. 11:09:52
16 BY MR. JAFFE: 11:09:52
17 Q. All right. Let me come at this the other 11:09:55
18 way. 11:09:56
19 You saw him at least once with the laptop; 11:09:58
20 right?
21 A. Sure. 11:09:59
22 Q. At least, let's say, 50 times? 11:10:01
23 MR. KIM: Objection to form. 11:10:02
24 THE WITNESS: At least some number of times. I 11:10:06
25 don't know. 11:10:06

1 BY MR. JAFFE:

2 Q. Okay. You're aggressively resisting giving 11:10:09
3 any sort of number. And the judge asked for this, so 11:10:12
4 I'm just going to press on this a little bit longer? 11:10:13
5 Okay?

6 MR. KIM: Objection to form. 11:10:17

7 BY MR. JAFFE: 11:10:17

8 Q. More than 30 times? 11:10:20

9 A. Possibly. 11:10:21

10 Q. Would you dispute if someone said to the 11:10:22
11 court that he -- you saw his laptop at least 30 times 11:10:27
12 when you were working at Otto before the Uber
13 acquisition?

14 MR. KIM: Objection to form. 11:10:30

15 THE WITNESS: If someone claimed to see him with a 11:10:32
16 laptop 30 times, I would not object to that. 11:10:34

17 BY MR. JAFFE: 11:10:34

18 Q. And just talking about regularly, if we were 11:10:38
19 going to put an approximate amount, would you say 11:10:41
20 approximately two to four times a week you saw him 11:10:44
21 with a laptop at Otto? Is that fair? 11:10:46

22 MR. KIM: Objection; form. 11:10:46

23 THE WITNESS: I don't know if kept his laptop with 11:10:50
24 him everywhere he went in the office, so -- 11:10:53

25 BY MR. JAFFE:

1 Q. I'm just asking about what you saw with your 11:10:56
2 own eyes. 11:10:57

3 A. So I would say a few times a week when he was 11:11:04
4 spending that week in the office. 11:11:07

5 Q. Fair. 11:11:08

6 So just to clean that up for purposes of the 11:11:12
7 record, your testimony, based on your personal 11:11:17
8 knowledge, is you approximately saw Mr. Levandowski 11:11:21
9 when he was in San Francisco with his Macintosh laptop 11:11:27
10 a few times a week -- 11:11:29

11 MR. KIM: Objection; form. 11:11:31

12 BY MR. JAFFE: 11:11:31

13 Q. -- is that fair? 11:11:33

14 MR. KIM: Objection; form. 11:11:34

15 THE WITNESS: It's fair as long as we emphasize 11:11:37
16 approximately. 11:11:39

17 BY MR. JAFFE: 11:11:39

18 Q. Okay. All right. Did you ever get e-mails 11:11:45
19 from Mr. Levandowski while he was working from home? 11:11:51

20 A. I don't know. 11:11:54

21 Q. Why don't you know? 11:11:57

22 A. I would occasionally get e-mails from Anthony 11:12:00
23 Levandowski, but I don't know how to tell you where he 11:12:03
24 was when he sent those e-mails. 11:12:05

25 Q. So there's no instance where you're sitting 11:12:09

1 in the office and you look around and he's not there 11:12:11
2 and he hasn't been there all day and he's sending 11:12:16
3 e-mails? That's never happened? 11:12:19
4 A. Incorrect. 11:12:19
5 Q. So can you please explain then. 11:12:21
6 A. He travels a lot. So I quite likely got 11:12:25
7 e-mails from him when I didn't see him in the office. 11:12:30
8 Q. So you don't know where he is a lot of the 11:12:32
9 time; is that fair? 11:12:33
10 A. That's fair. 11:12:34
11 Q. So you got e-mails from Mr. Levandowski when 11:12:37
12 you were working at Otto, but he wasn't sitting with 11:12:39
13 you in the office; right? 11:12:40
14 A. I believe that's true, yes. 11:12:45
15 Q. So he wasn't in the office, you don't know 11:12:47
16 where he is, but he's e-mailing you about Otto; is 11:12:50
17 that fair? 11:12:52
18 A. That's fair. 11:12:53
19 Q. And was that something that happened on a 11:12:58
20 regular basis? 11:12:59
21 MR. KIM: Objection; form. 11:12:59
22 THE WITNESS: I think that's fair. 11:13:04
23 BY MR. JAFFE: 11:13:04
24 Q. So I want to talk about Fuji for a second 11:13:11
25 here. 11:13:13

1 In the Fuji design -- and we'll just go 11:13:17
2 cavity by cavity. 11:13:18
3 But for the mid-range cavity, there are three 11:13:20
4 transmit boards; right? 11:13:21
5 A. Right. 11:13:23
6 Q. And in the mid-range cavity, there are three 11:13:27
7 transmit boards and they are pointed -- and they're 11:13:30
8 parallel to one another; right? 11:13:31
9 A. Right. 11:13:31
10 Q. The transmit lens for the mid-range cavity is 11:13:37
11 less in width than the width of the transmit boards; 11:13:43
12 right? 11:13:44
13 MR. KIM: Objection; form. 11:13:44
14 THE WITNESS: Could you clarify. I'm confused 11:13:50
15 which lens you're referring to. 11:13:52
16 BY MR. JAFFE: 11:13:52
17 Q. Yes. Let me just mark something and make 11:13:56
18 this easier. 11:13:57
19 MR. JAFFE: And we'll have this be 151. 11:14:04
20 (Pleading's Exhibit 151 was marked.)
21 MR. KIM: At some point -- we've been going for I 11:14:10
22 think over an hour -- if we can take a break. You can 11:14:12
23 ask your line of questions. I'm just saying at a 11:14:15
24 convenient time. 11:14:16
25 MR. JAFFE: Sure. 11:14:16

1 BY MR. JAFFE: 11:14:16

2 Q. So if you can turn to page 4. 11:14:23

3 MR. KIM: What are we looking at? Is this marked? 11:14:29

4 MR. JAFFE: Yes, I just marked it as 151. 11:14:34

5 MR. KIM: Do you have an extra copy or -- 11:14:34

6 MR. JAFFE: Oh, I thought I handed it to you.

7 Apologies. Here you go.

8 MR. KIM: Thanks.

9 BY MR. JAFFE: 11:14:34

10 Q. So if you can turn to page 4, please. 11:14:39

11 This is a depiction of the CAD drawing of the 11:14:44

12 Fuji design; right? 11:14:45

13 A. Right. 11:14:45

14 Q. So let's take the right-hand side. 11:14:47

15 Do you see there's the transmit path? 11:14:49

16 A. Yes. 11:14:49

17 Q. And there are three boards and they're 11:14:52

18 parallel to one another? 11:14:53

19 A. Yes. 11:14:53

20 Q. And then do you see the transmit lens at the 11:14:56

21 top? 11:14:57

22 A. Yes. 11:14:57

23 Q. The width of the transmit lens is smaller 11:15:01

24 than -- you know, if you were to go from one -- from 11:15:09

25 the leftmost transmit board to the rightmost transmit 11:15:13

1 board; right? 11:15:13

2 A. They look very close. 11:15:17

3 Q. But they're not very close? 11:15:19

4 MR. KIM: Objection; form. 11:15:21

5 THE WITNESS: If you're telling me the transmit 11:15:22

6 lens is smaller, I would not dispute that. 11:15:25

7 BY MR. JAFFE: 11:15:25

8 Q. I'm not trying to tell you anything. I'm

9 trying to ask you because you helped come up with this 11:15:29

10 design. So if you don't know, that's fine, but I'm 11:15:32

11 just trying to ask the question here. 11:15:34

12 A. Yes, the transmit lens appears to be what I 11:15:42

13 would say narrower than the grouping of transmit 11:15:46

14 boards. 11:15:47

15 Q. Great. 11:15:48

16 My question is, how do you get the beams to 11:15:50

17 go into the transmit lens if the transmit lens is 11:15:55

18 narrower than the width of the transmit boards? 11:15:58

19 MR. KIM: Objection; form. 11:15:58

20 BY MR. JAFFE: 11:15:58

21 Q. In the Fuji design. 11:16:01

22 A. (Indecipherable.)

23 THE REPORTER: I'm sorry? 11:16:08

24 THE WITNESS: The fast-axis collimation lens 11:16:15

25 collimates the light coming out of the laser diodes 11:16:21

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 [REDACTED] 11:16:25

2 BY MR. JAFFE: 11:16:25

3 Q. What do you mean, "necessarily"? 11:16:26

4 A. Any time you have a lens placed in 11:16:32

5 relationship to the source of light, the lateral 11:16:38

6 resolution -- wrong word -- the lateral relationship 11:16:42

7 between a light source and a lens will dictate the 11:16:47

8 exit angle of the light coming out of that lens. 11:16:50

9 So if you want the light to go straight, you 11:16:54

10 have to carefully place the FAC lens, or fast-axis 11:16:59

11 collimation lens, in a position that will cause the 11:17:04

12 light to exit perhaps parallel to the board, if you 11:17:07

13 want that. 11:17:08

14 Q. So in the Fuji design -- and we'll call it 11:17:11

15 the FAC lens for the benefit of the court reporter 11:17:13

16 here -- [REDACTED]

[REDACTED]

[REDACTED] is that fair? 11:17:26

19 MR. KIM: Objection; form. 11:17:26

20 THE WITNESS: Maybe I don't like the word [REDACTED]

[REDACTED] And 11:17:38

22 so to clarify, the FAC lens precollimates the light 11:17:44

23 [REDACTED] 11:17:47

24 BY MR. JAFFE: 11:17:47

25 Q. [REDACTED] 11:17:49

Page 50

[REDACTED] right? 11:17:50

2 MR. KIM: Objection; form. 11:17:50

3 BY MR. JAFFE: 11:17:50

4 Q. That's all I mean by [REDACTED] 11:17:54

5 MR. KIM: Objection; form. 11:17:54

6 THE WITNESS: On two of our laser boards, the 11:17:59

7 [REDACTED]

[REDACTED]

[REDACTED] 11:18:11

10 BY MR. JAFFE: 11:18:11

11 Q. Okay. So I don't have real-time, so I'm 11:18:18

12 going to try and just repeat back to make sure I 11:18:21

13 understand what you said. 11:18:22

14 The fast-axis collimation - [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] true? 11:18:42

18 MR. KIM: Objection; form. 11:18:42

19 THE WITNESS: True as long as we clarify 11:18:48

20 horizontal is horizontal in the drawing. 11:18:51

21 BY MR. JAFFE: 11:18:51

22 Q. So if anyone testified or said that there's 11:18:57

23 [REDACTED] that would 11:19:01

24 be wrong; right? 11:19:02

25 MR. KIM: Objection; form. 11:19:02

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 THE WITNESS: Not necessarily. The word 11:19:05
2 [REDACTED] in LiDAR often means [REDACTED]
[REDACTED] 11:19:13
4 BY MR. JAFFE: 11:19:13
5 Q. I see. 11:19:13
6 So it's just kind of -- if they said there's 11:19:18
7 [REDACTED] they could be right, but they could be 11:19:21
8 wrong? 11:19:21
9 MR. KIM: Objection; form. 11:19:21
10 THE WITNESS: Could. 11:19:23
11 BY MR. JAFFE: 11:19:23
12 Q. And if someone said [REDACTED]
[REDACTED]
[REDACTED]; right? 11:19:32
15 MR. KIM: Objection; form. 11:19:32
16 THE WITNESS: Too many words at once. Could you 11:19:36
17 repeat your last question. 11:19:38
18 MR. JAFFE: Why don't we just have the court 11:19:47
19 reporter repeat it.
20 (Record read by reporter as follows:
21 "Question: And if someone said it's
22 [REDACTED]
[REDACTED]
[REDACTED] right?") 11:19:47
25 MR. KIM: Objection; form. 11:19:47

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 THE WITNESS: If they say it's [REDACTED] yes, they 11:19:52
2 are not necessarily denying the fact that [REDACTED] [REDACTED]
[REDACTED] 11:19:57
4 BY MR. JAFFE: 11:19:57
5 Q. Sorry. There was a missing word there. 11:19:59
6 If they say it's not [REDACTED] -- 11:20:01
7 A. Oh.
8 Q. -- they're not denying that it [REDACTED]
[REDACTED] 11:20:08
10 true? 11:20:08
11 MR. KIM: Objection; form. 11:20:08
12 THE WITNESS: If I were to say it's not [REDACTED] 11:20:18
13 I would not be denying that [REDACTED] I 11:20:21
14 can't tell you what they would say. 11:20:22
15 MR. JAFFE: Okay. Why don't we take our first 11:20:27
16 break. 11:20:28
17 THE VIDEOGRAPHER: We are off the record at 11:20 11:20:31
18 a.m. 11:20:31
19 (Recess taken.) 11:20:31
20 THE VIDEOGRAPHER: We're back on the record at 11:33:47
21 11:33 a.m. 11:33:49
22 BY MR. JAFFE: 11:33:49
23 Q. Welcome back. 11:34:13
24 A. Thank you. 11:34:14
25 Q. Last Thursday it was reported in the press 11:34:19

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 that Mr. Levandowski was demoting himself in some way. 11:34:26

2 Are you familiar with that? 11:34:27

3 A. I'm familiar with the announcement that his 11:34:31

4 position was changing. I only take issue with your 11:34:37

5 comment -- or your phrase that says he was demoting 11:34:40

6 himself. I don't know who decided his position should 11:34:45

7 change. 11:34:45

8 Q. I see. 11:34:45

9 So you don't know who actually decided that 11:34:49

10 his position should change? 11:34:51

11 A. Correct. 11:34:51

12 Q. And do you take issue with the idea that he 11:34:54

13 was demoted in some way? 11:34:56

14 A. Not necessarily. 11:34:58

15 Q. Okay. So if I call it his demotion, that's a 11:35:03

16 fair statement? 11:35:03

17 A. I won't argue with that. 11:35:05

18 Q. So how did you find out about 11:35:09

19 Mr. Levandowski's demotion? 11:35:12

20 A. I received an e-mail. I believe the whole 11:35:16

21 company received an e-mail describing that change. 11:35:21

22 I want to say Anthony sent the e-mail, but 11:35:25

23 I'm not 100 percent positive on that. 11:35:28

24 [REDACTED] 11:35:36

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 [REDACTED] 11:35:38

2 [REDACTED] 11:35:43

3 [REDACTED] 11:35:46

4 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 11:36:13

13 BY MR. JAFFE: 11:36:13

14 Q. Before that e-mail on Thursday, there was no 11:36:18

15 sort of company policy excluding Mr. Levandowski from 11:36:23

16 providing input onto LiDAR; right? 11:36:27

17 MR. KIM: Objection; form. 11:36:27

18 THE WITNESS: I'm not aware of any policy before 11:36:31

19 that date regarding excluding him from any aspect of 11:36:35

20 any work at the company. 11:36:36

21 BY MR. JAFFE: 11:36:36

22 Q. Including LiDAR? 11:36:41

23 A. Including LiDAR. 11:36:41

24 Q. So you never received any sort of special 11:36:45

25 instructions about what you could and couldn't do 11:36:47

Page 55

1 working with Mr. Levandowski before last Thursday; is 11:36:52
2 that fair? 11:36:53
3 A. That seems -- yeah, that's a true statement. 11:36:58
4 Q. Are you aware of anyone else receiving 11:37:00
5 special instructions about what they could and 11:37:02
6 couldn't do in working with Mr. Levandowski before 11:37:05
7 last Thursday? 11:37:06
8 MR. KIM: Objection; form. 11:37:06
9 THE WITNESS: I'm not aware of anything like that. 11:37:10
10 BY MR. JAFFE: 11:37:10
11 Q. So before last Thursday Mr. -- as far as you 11:37:14
12 know, Mr. Levandowski was free to provide input into 11:37:18
13 all parts of the self-driving project, including LiDAR 11:37:20
14 and other parts; right? 11:37:24
15 MR. KIM: Objection; form. 11:37:24
16 THE WITNESS: That's my understanding. 11:37:26
17 BY MR. JAFFE: 11:37:26
18 Q. And today as of right now, he's free to 11:37:32
19 provide input into all parts of the self-driving 11:37:36
20 project except for LiDAR? 11:37:38
21 MR. KIM: Objection; form. 11:37:38
22 THE WITNESS: I don't recall if there was any 11:37:45
23 other restrictions, but definitely LiDAR was mentioned 11:37:48
24 specifically. 11:37:52
25 BY MR. JAFFE: 11:37:52

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. You don't recall whether there were any other 11:37:54
2 restrictions in the e-mail? 11:37:56
3 A. In the e-mail, correct. 11:37:57
4 Q. I see. Okay. So let me try this again. 11:38:00
5 So apart from the restrictions that are 11:38:02
6 stated in the e-mail, you're not -- today you're not 11:38:04
7 aware of any other limitations on Mr. Levandowski's 11:38:08
8 input into the self-driving project? 11:38:11
9 A. Correct, I'm not aware of any such additional 11:38:13
10 limitations. 11:38:14
11 [REDACTED] 11:38:20
12 [REDACTED]
13 MR. KIM: Objection; form. 11:38:22
14 THE WITNESS: [REDACTED] 11:38:23
15 BY MR. JAFFE: 11:38:23
16 [REDACTED]
17 [REDACTED]
18 [REDACTED] 11:38:32
19 MR. KIM: Objection; form. 11:38:36
20 THE WITNESS: [REDACTED] 11:38:38
21 BY MR. JAFFE: 11:38:38
22 Q. [REDACTED] [REDACTED]
23 [REDACTED] [REDACTED]
24 [REDACTED] [REDACTED]
25 [REDACTED] [REDACTED] 11:38:47

Page 57

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. KIM: Objection; form. 11:38:48

2 BY MR. JAFFE: 11:38:48

3 [REDACTED] 11:38:52

4 [REDACTED] 11:38:54

5 MR. KIM: Objection; form. 11:38:55

6 THE WITNESS: [REDACTED] 11:38:56

7 [REDACTED]

8 [REDACTED] 11:39:02

9 BY MR. JAFFE:

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED] 11:39:22

19 Just for the purposes of the record, can you 11:39:23

20 just explain what you mean by that for a lay audience. 11:39:26

21 A. So again, my understanding of how our 11:39:29

22 autonomous software works, is limited -- with that 11:39:34

23 preface, I would suggest my understanding of the 11:39:37

24 perception team is to take LiDAR and other sources of 11:39:42

25 data and determine what objects exist outside the 11:39:50

Page 58

1 vehicle. 11:39:52

2 If you refer generically to a compute team, 11:39:58

3 there may be other aspects of software after or 11:40:01

4 downstream in the data path after perception that 11:40:05

5 would need to use data that the perception software 11:40:09

6 generates in order to determine the car's proper 11:40:15

7 driving course. 11:40:17

8 Q. So even today -- well, actually, let me back 11:40:22

9 up. 11:40:22

10 What is "perception" in this context? 11:40:25

11 A. In this context, my use of the word 11:40:29

12 "perception" would be software that takes sensed 11:40:36

13 data input from LiDAR, camera, radar, possibly 11:40:42

14 inertial measurement sensors, wheel sensors, to 11:40:49

15 identify distinct objects in the world around it and 11:40:54

16 possibly classify those objects in terms of perhaps, 11:41:00

17 for example, being a person, a pedestrian, another car 11:41:06

18 or a bus and passing that information to the next 11:41:12

19 layers of software that could exist. 11:41:15

20 Q. And in the context of our conversation, what 11:41:18

21 does the compute team do? 11:41:20

22 A. So this would be a vague term. I can only 11:41:24

23 guess what you might be hinting at, but I know that 11:41:27

24 there are other software and software groups writing 11:41:32

25 software that operate on an autonomous vehicle. 11:41:37

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. What is a software that decides when to turn 11:41:39
2 and when to stop? What is that called within Uber? 11:41:43
3 A. If I'm not mistaken, I believe that is called 11:41:45
4 planning. 11:41:46
5 [REDACTED] 11:41:51
6 [REDACTED]
7 MR. KIM: Objection; form. 11:41:53
8 THE WITNESS: [REDACTED] 11:41:57
9 [REDACTED]
10 [REDACTED] 11:42:04
11 BY MR. JAFFE: 11:42:04
12 Q. And you understand that the planning software 11:42:06
13 leverages LiDAR data; right? 11:42:09
14 MR. KIM: Objection; form. 11:42:13
15 THE WITNESS: I want to be specific and say I 11:42:16
16 don't know whether the planning software leverages 11:42:19
17 native LiDAR data or data that's output from the 11:42:24
18 perception software. I just don't know. 11:42:28
19 BY MR. JAFFE: 11:42:28
20 Q. Let's be clear, though. 11:42:29
21 The planning software leverages data that 11:42:32
22 came from the LiDAR? 11:42:34
23 A. Yes. 11:42:34
24 Q. You don't dispute that; right? 11:42:36
25 A. No. 11:42:36

Page 60

1 Q. Okay. 11:42:39

2 MR. JAFFE: Let's mark -- this will be 152. 11:43:26

3 THE REPORTER: Correct. 11:43:26

4 It's the supplemental declaration, 152?

5 MR. JAFFE: Correct.

6 THE REPORTER: I think you need this one.

7 (Plaintiff's Exhibit 152 was marked.) 11:43:29

8 BY MR. JAFFE: 11:43:29

9 Q. Did I give you two copies? 11:43:55

10 A. Yeah.

11 Q. Mr. Haslim, whose idea was it for you to 11:44:05

12 write this supplemental declaration? 11:44:08

13 MR. KIM: Objection to the extent it calls for 11:44:12

14 privileged information. 11:44:14

15 Instruct you not to answer or 11:44:18

16 reveal -- answer to the extent it reveals any 11:44:23

17 privileged communications with any attorneys. 11:44:27

18 THE WITNESS: So I would say the legal team 11:44:33

19 working for Uber instructed this. 11:44:37

20 BY MR. JAFFE:

21 Q. And I don't want to get into properly 11:44:40

22 privileged conversations. All I want to ask is, in 11:44:46

23 terms of this document, 152, your declaration, was it 11:44:49

24 something where you said, I want to put in a new 11:44:52

25 declaration or someone approached you and said, we 11:44:54

Page 61

1 want a new declaration? 11:44:56

2 MR. KIM: And, again, you can answer whether or 11:44:59

3 not it was done at the direction of counsel, but don't 11:45:03

4 reveal any privileged communications with counsel. 11:45:07

5 THE WITNESS: Okay. So this was generated at the 11:45:11

6 instruction of counsel. 11:45:12

7 BY MR. JAFFE: 11:45:12

8 Q. Okay. So we're clear, the lawyers -- and I 11:45:17

9 don't want to get into the substance of any 11:45:18

10 communications here, but just for the purposes of the 11:45:21

11 record, your supplemental declaration was put together 11:45:26

12 at the request of Uber's lawyers; fair? 11:45:30

13 A. Yes. 11:45:30

14 Q. Since our last deposition, have you discussed 11:45:39

15 any content of your declarations or the deposition 11:45:42

16 with any nonlawyers? 11:45:50

17 A. I don't recall any substantive discussion 11:45:53

18 with nonlawyers. 11:45:55

19 Q. Have you spoken with Mr. Levandowski about 11:45:58

20 the subject matter of this case? 11:46:01

21 A. Not in any substantive way. 11:46:06

22 Q. At all? 11:46:07

23 A. It's probably -- yes. 11:46:11

24 Q. What did you and Mr. Levandowski discuss? 11:46:14

25 MR. KIM: And I want to caution you -- if you had 11:46:17

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 any of these discussions in the presence of lawyers, 11:46:20
2 would caution you not to reveal any privileged 11:46:22
3 communications. 11:46:25

4 THE WITNESS: This jovial, high-level, 11:46:30
5 nonsubstantive discussion -- "discussion" is almost a 11:46:35
6 strong term. How about, how are you doing, how are 11:46:39
7 you feeling? 11:46:40

8 BY MR. JAFFE: 11:46:40

9 Q. Please tell me everything that you remember 11:46:44
10 about the conversations that you had with 11:46:46
11 Mr. Levandowski about the subject matter of this case? 11:46:50

12 [REDACTED] 11:46:50

[REDACTED] 11:46:50

[REDACTED] 11:46:50

[REDACTED] 11:46:50

[REDACTED] 11:46:50

[REDACTED] 11:47:15

18 MR. KIM: Objection; form. 11:47:17

19 THE WITNESS: [REDACTED] 11:47:17

20 BY MR. JAFFE: 11:47:17

21 [REDACTED] 11:47:17

[REDACTED] 11:47:17

[REDACTED] 11:47:17

[REDACTED] 11:47:26

25 Q. Sorry. Continue. 11:47:30

Page 63

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 [REDACTED] 11:47:41

2 [REDACTED] 11:47:44

4 [REDACTED] 11:47:45

5 Q. Anything else? 11:47:46

6 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 11:48:13

13 Q. Anything else? 11:48:15

14 A. No. 11:48:15

15 [REDACTED]

[REDACTED]

[REDACTED]

18 [REDACTED] 11:48:25

19 Q. Why not? 11:48:26

20 A. I don't know. 11:48:29

21 Q. You don't care? 11:48:30

22 A. No. 11:48:31

[REDACTED]

[REDACTED]

[REDACTED]

Page 65

1	MR. KIM: Objection; form.	11:50:00
2	THE WITNESS: I'm sorry.	11:50:01
3	BY MR. JAFFE:	11:50:01
4	Q. You think it's a joke?	11:50:02
5	A. I think it's impossible, in my opinion, that	11:50:07
6	those files would be at Uber.	11:50:10
7	Q. How can you possibly know?	11:50:14
8	A. I cannot know, but it strikes me as	11:50:18
9	ridiculous.	11:50:19
10	Q. It strikes you as ridiculous?	11:50:21
11	A. Yeah.	11:50:21
12	Q. You think it's ridiculous that	11:50:24
13	Mr. Levandowski pleads his constitutional right to	11:50:26
14	avoid self-incrimination when asked where these files	
15	are and it's ridiculous for us to ask where they are;	11:50:32
16	that's what you think?	11:50:34
17	MR. KIM: Objection; form.	11:50:36
18	THE WITNESS: You're asking my personal opinion.	11:50:38
19	I think it's extremely unlikely to the point of	11:50:43
20	ridiculous that those files are on a computer somehow	11:50:47
21	at Uber after all of the forensics that were done on	11:50:53
22	Anthony's computer, as it was described to us, after	11:50:58
23	all the searching of all the hard drives that we can	11:51:02
24	come up with.	11:51:03
25	BY MR. JAFFE:	11:51:03

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1	Q. You do know that no one has searched	11:51:07
2	Mr. Levandowski's personal computer; right?	11:51:10
3	MR. KIM: Objection; form.	11:51:10
4	THE WITNESS: I have read that in an article or	11:51:12
5	two.	11:51:14
6	BY MR. JAFFE:	11:51:14
7	Q. And he's refusing to turn those over, again	11:51:17
8	based on his rights to avoid incriminating himself?	11:51:23
9	MR. KIM: Objection; form.	11:51:24
10	THE WITNESS: That's my understanding.	11:51:25
11	BY MR. JAFFE:	11:51:25
12	[REDACTED]	
	[REDACTED]	11:51:31
14	MR. KIM: Objection; form.	11:51:31
15	[REDACTED]	
	[REDACTED]	
	[REDACTED]	11:51:40
18	BY MR. JAFFE:	11:51:40
19	[REDACTED]	
	[REDACTED]	
	[REDACTED]?	11:51:48
22	MR. KIM: Objection; form.	11:51:50
23	THE WITNESS: Is that a question?	11:51:51
24	BY MR. JAFFE:	11:51:51
25	[REDACTED]	11:51:53

Page 67

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. KIM: Objection; form. 11:51:54

2 THE WITNESS: [REDACTED] 11:51:55

3 BY MR. JAFFE: 11:51:55

4 Q. Do you take intellectual property rights 11:51:59

5 seriously? 11:52:01

6 A. Yes. 11:52:01

7 Q. Do you think it's wrong for one company to 11:52:03

8 steal another company's intellectual property rights? 11:52:07

9 A. Yes. 11:52:07

10 Q. Do you think that's a joke? 11:52:10

11 A. No. 11:52:10

12 Q. Do you think that's something that should be 11:52:12

13 taken seriously? 11:52:15

14 A. Yes. 11:52:15

15 [REDACTED] 11:52:31

16 [REDACTED]

17 [REDACTED]

18 MR. KIM: Objection; form. 11:52:35

19 THE WITNESS: [REDACTED] 11:52:36

20 BY MR. JAFFE: 11:52:36

21 Q. [REDACTED] 11:52:40

22 MR. KIM: Same objection. 11:52:42

23 THE WITNESS: [REDACTED] 11:52:44

24 [REDACTED] 11:52:49

[REDACTED]

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 BY MR. JAFFE: 11:52:49

2 [REDACTED]

3 [REDACTED] 11:52:56

4 [REDACTED]

5 [REDACTED] 11:53:02

6 MR. KIM: Objection; form. 11:53:05

7 THE WITNESS: I don't know. 11:53:06

8 BY MR. JAFFE: 11:53:06

9 Q. You don't know? 11:53:07

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED] 11:53:28

17 Q. Okay. Turning back to your supplemental 11:53:38

18 declaration, which is 151. Let's go to paragraph 13. 11:53:46

19 Actually, before we get there, start with 11:53:51

20 paragraph 7. 11:53:53

21 Here you're talking about the fiber lasers in 11:54:00

22 the Spider design; right? 11:54:01

23 A. Sorry. 152 or 151? 11:54:05

24 Q. 152. Excuse me. 11:54:07

25 A. Sorry. 11:54:08

Page 69

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 (Witness reviews document.) 11:54:26

2 A. Repeat your question, please. 11:54:27

3 Q. Paragraph 7 of your supplemental declaration, 11:54:30

4 Exhibit 152, is talking about the design of the fiber 11:54:32

5 laser in the Spider? 11:54:36

6 A. Yes. Yes. 11:54:37

7 Q. You don't mention Mr. Levandowski's 11:54:40

8 involvement in paragraph 7, do you? 11:54:43

9 A. No. 11:54:43

10 Q. You don't mention that Mr. Levandowski 11:54:45

11 pointed you to [REDACTED] right? 11:54:52

12 A. No. 11:54:52

13 Q. You don't mention his role in the design of 11:54:55

14 the laser at all in paragraph 7, do you? 11:54:58

15 A. No. 11:55:00

16 Q. All right. Let's go to paragraph 13, talking 11:55:13

17 about Fuji again. So here you're pointing -- you 11:55:27

18 excerpt a document that you say discusses beam spacing 11:55:32

19 and angles for the Fuji design; is that right? 11:55:35

20 A. Yes. 11:55:36

21 Q. And just looking at what's depicted here, 11:55:41

22 where is [REDACTED] mentioned? 11:55:47

23 A. Neither [REDACTED] are mentioned, nor [REDACTED]

[REDACTED] However, it can be implied 11:56:00

25 from [REDACTED] and it can be implied 11:56:06

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 from [REDACTED] 11:56:14

3 Q. Again, there's no mention in what you're 11:56:20

4 depicting here of [REDACTED]

[REDACTED] right? 11:56:25

6 A. There's no depiction of [REDACTED]

[REDACTED] There's no depiction of [REDACTED]

[REDACTED] 11:56:41

9 THE REPORTER: [REDACTED] 11:56:41

10 THE WITNESS: Two cavities.

11 THE REPORTER: Two cavities. T-o?

12 THE WITNESS: T-w-o.

13 THE REPORTER: Thank you.

14 BY MR. JAFFE: 11:56:41

15 Q. The Fuji project, who came up with the idea 11:56:51

16 to have 64 channels? 11:56:53

17 A. I'm not sure. I believe early on we 11:57:04

18 discussed making a Velodyne replacement that has 64 11:57:09

19 beams. At some point, I was considering whether we 11:57:12

20 could put more channels on to make it better. And I 11:57:17

21 believe, if my recollection serves, working with 11:57:19

22 Scott, came to the conclusion that more beams would 11:57:26

23 change the timing between subsequent shots of the same 11:57:31

24 laser and would have an effect on the horizontal 11:57:34

25 spacing of those measurements. 11:57:37

Page 71

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. Who came up with [REDACTED] 11:57:45
2 for Fuji? 11:57:46
3 A. I would say that was a decision reached by me 11:57:56
4 with collaboration with my electrical engineer Florin 11:58:00
5 Ignatescu. 11:58:02
6 Q. Anyone else? 11:58:07
7 A. I believe the discussion of the [REDACTED] 11:58:13
8 also involved Gaetan as it pertains to the performance 11:58:20
9 of his lens and how it would work with [REDACTED] 11:58:25
10 I'm sure we informed other people. Scott may have 11:58:34
11 been in the office when we were making this decision 11:58:36
12 as well. Dan Gruver would probably be informed as 11:58:41
13 well, but I don't recall Dan playing any role in that 11:58:45
14 decision. 11:58:45
15 Q. Who was involved in coming up with [REDACTED] [REDACTED]
[REDACTED] 11:58:50
17 MR. KIM: Objection; form. 11:58:53
18 THE WITNESS: In coming up with [REDACTED] I 11:58:57
19 would say that was primarily me and the electrical 11:59:00
20 engineer, Florin. 11:59:02
21 BY MR. JAFFE:
22 Q. And then you discussed it with the LiDAR 11:59:05
23 team? 11:59:07
24 MR. KIM: Objection; form. 11:59:09
25 THE WITNESS: Yes. 11:59:09

1	BY MR. JAFFE:	11:59:09
2	Q. And did you ever discuss the idea to use [REDACTED]	
	[REDACTED] with Mr. Levandowski?	11:59:19
4	A. No, not that I recall.	11:59:22
5	Q. So when you were presenting the pivot to	11:59:27
6	Mr. Levandowski, it never came up how many transmit	11:59:30
7	boards there would be?	11:59:31
8	A. No.	11:59:31
9	Q. He had no idea?	11:59:33
10	A. He had no idea.	11:59:34
11	Q. And you never discussed with Mr. Levandowski	11:59:40
12	the details of the Fuji design in terms of the number	11:59:43
13	of transmit boards; is that true?	11:59:45
14	A. I don't recall having any discussion like	11:59:48
15	that at all.	11:59:49
16	Q. So you're saying you don't recall? I just	11:59:53
17	want to be clear.	11:59:55
18	A. Yes.	11:59:56
19	Q. So I'll ask my question again.	11:59:58
20	Have you ever discussed with Mr. Levandowski	12:00:01
21	the number of transmit boards in the Fuji design?	12:00:05
22	MR. KIM: Objection; form.	12:00:07
23	THE WITNESS: I don't recall having any discussion	12:00:11
24	about the number of transmit boards.	12:00:14
25	BY MR. JAFFE:	12:00:14

1 Q. Are you aware of any conversations between 12:00:17
2 Mr. Gruver or Mr. Pennecot and Mr. Levandowski 12:00:20
3 regarding the number of transmit boards in the Fuji 12:00:24
4 design? 12:00:24
5 MR. KIM: Objection; form. 12:00:26
6 THE WITNESS: I am not aware. 12:00:28
7 BY MR. JAFFE: 12:00:28
8 Q. So it's possible that they have discussed 12:00:29
9 this issue with them, you wouldn't know that; right? 12:00:32
10 A. I wouldn't know that. 12:00:34
11 Q. So you're not saying that Mr. Levandowski has 12:00:36
12 never had discussions or input into the idea to use 12:00:40
13 [REDACTED] right? 12:00:43
14 MR. KIM: Objection; form. 12:00:46
15 THE WITNESS: What I am saying is that Anthony 12:00:48
16 never had input into my decision with my electrical 12:00:55
17 engineer to put [REDACTED] 12:01:00
18 BY MR. JAFFE: 12:01:00
19 Q. Right. 12:01:00
20 But you talked about that decision with 12:01:02
21 Mr. Gruver, for example; right? 12:01:03
22 A. I think discussions with Gruver came later, 12:01:07
23 yeah. 12:01:07
24 Q. Or Mr. Pennecot, for example? 12:01:10
25 A. Mr. Pennecot was probably consulted in that 12:01:13

1 process as well. 12:01:14

2 Q. And you're not aware and you can't testify, 12:01:16

3 sitting here today, whether either of those two 12:01:19

4 gentleman discussed this idea with Mr. Levandowski; is 12:01:23

5 that right? 12:01:24

6 MR. KIM: Objection; form. 12:01:25

7 THE WITNESS: I couldn't say. 12:01:25

8 BY MR. JAFFE:

9 Q. So in your declaration or in anywhere, can't 12:01:28

10 say that Mr. Levandowski had no input into the number 12:01:32

11 of boards because you don't know all the conversations 12:01:35

12 that Mr. Levandowski had; fair? 12:01:37

13 MR. KIM: Objection; form. 12:01:37

14 THE WITNESS: No, I disagree with that. 12:01:39

15 BY MR. JAFFE: 12:01:39

16 Q. Why? 12:01:41

17 A. When you go so far as to say input into the 12:01:44

18 design, I don't see how some conversation with Anthony 12:01:49

19 could have influenced what I saw as a need to split 12:01:53

20 the lasers [REDACTED]

[REDACTED] 12:01:58

22 Q. So where did you get that idea from? 12:02:01

23 A. I don't recall where the idea came from, but 12:02:12

24 it seemed like a requirement from the beginning. 12:02:16

25 Q. What does that mean? 12:02:17

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. We knew that we were placing edge-emitting 12:02:22
2 laser diodes on a flat PCB. 12:02:26

3 Q. And that was the PCB that Mr. Pennecot 12:02:29
4 designed; right? 12:02:29

5 A. Yes. 12:02:29

6 Q. And that's the board that eventually was sent 12:02:35
7 to Gorilla in December? 12:02:38

8 A. That was one of the boards. 12:02:40

9 So when we knew we were placing these boards 12:02:48
10 flat onto a PCB, edge-emitting diodes, and we realized 12:02:53
11 they [REDACTED]

[REDACTED] as 12:03:01

13 I recall, [REDACTED]

[REDACTED] was obvious. 12:03:08

15 Q. I see. 12:03:08

16 So you got the board design from Mr. Pennecot 12:03:13
17 and you knew you wanted 64 channels because you 12:03:17
18 were -- wanted to do something similar to what 12:03:21
19 Velodyne was doing and then derivative from that is 12:03:25
20 how you got to [REDACTED]? 12:03:28

21 MR. KIM: Objection; form. 12:03:29

22 THE WITNESS: That's taking it actually out of 12:03:32
23 sequence. 12:03:33

24 BY MR. JAFFE: 12:03:33

25 Q. Okay. Can you put it in sequence, please. 12:03:36

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. Yes. 12:03:36

2 We knew we needed a laser circuit, so I had 12:03:40

3 Florin design multiple laser circuits onto a board for 12:03:45

4 test and evaluation. We picked one of those circuits 12:03:48

5 that we thought performed the best. He began 12:03:51

6 considering the size of his circuit in one of those -- 12:03:56

7 I believe it was 10 different circuits. The one we 12:03:59

8 chose, he could look at the design of it and tell me 12:04:02

9 the size. 12:04:04

10 So at this point, as I recall, Gaetan did not 12:04:10

11 have a laser board design in his CAD model. He had a 12:04:20

12 lens design. He may have had -- I even doubt he had 12:04:26

13 taken that into CAD yet. 12:04:29

14 Q. So I'm a little bit confused. 12:04:32

15 Where did the idea to have [REDACTED] come 12:04:34

16 from? 12:04:35

17 [REDACTED]

[REDACTED] The need to 12:04:49

19 [REDACTED] developed quickly between 12:04:56

20 Florin and I looking at the size of the circuit, 12:04:59

21 knowing when Scott Boehmke defines a certain [REDACTED]

[REDACTED] when Gaetan has 12:05:08

23 designed a lens that has a 150 millimeter focal 12:05:13

24 length, it becomes apparent that the [REDACTED]

[REDACTED] 12:05:19

Page 77

1

3

4

6

10

11

12

13

14

15

16

17

18

20

21

22

23

24

25

[REDACTED]

[REDACTED]

12:05:24

It was obvious to me that wasn't going to

12:05:26

work and we would have to [REDACTED]

[REDACTED]

Later we went back and looked closer, and I

12:05:33

realized, wait a minute, [REDACTED]

[REDACTED]

So we can't put circuits on [REDACTED]

[REDACTED]

[REDACTED]

12:05:47

Furthermore, we were starting to look at

12:05:50

components on the receiver. We saw components on the

12:05:53

receiver that were themselves [REDACTED]

12:05:58

Those were high voltage components. They needed

12:06:00

additional space between them as well. So it seemed

12:06:01

pretty clear at the time [REDACTED] was not

12:06:05

going to work, so we said [REDACTED] Florin

12:06:09

thought he could [REDACTED].

12:06:14

[REDACTED] So that ended up with [REDACTED]

[REDACTED]

We already had decided two cavities to make

12:06:20

64 channels, so that ended up with [REDACTED]

12:06:24

in the sensor.

12:06:25

Q. Where are the documents that reflect the

12:06:27

discussions that you were just talking about?

12:06:31

A. We did not document our discussions.

12:06:33

Q. Okay. So there are no -- there's no

12:06:35

1 documentary evidence to evidence -- to support what 12:06:39
2 you just said? 12:06:40
3 MR. KIM: Objection; form. 12:06:42
4 BY MR. JAFFE: 12:06:42
5 Q. Is that fair? 12:06:42
6 A. Not quite. 12:06:43
7 We have documents showing and indicating to 12:06:47
8 us what the vertical angles were to be for the sensor 12:06:52
9 as specified by Scott Boehmke. We have a lens design 12:06:57
10 that's documented from Gaetan. We have the original 12:07:03
11 circuit Florin had developed for testing out lasers. 12:07:10
12 At that point, the documentation stopped. 12:07:14
13 And we don't have documents for discussions describing 12:07:22
14 how [REDACTED]
[REDACTED] 12:07:27
16 Q. Okay. So I just want to run through that 12:07:30
17 real quick. 12:07:30
18 So you're saying that you got the idea for 12:07:34
19 [REDACTED] based on three things. One is the [REDACTED]
[REDACTED] of the diodes that you wanted. Two is the 12:07:43
21 [REDACTED] And three is the [REDACTED]
[REDACTED] 12:07:49
23 Generally, is that fair? 12:07:53
24 A. I'd like you to add a fourth, which is the 12:07:56
25 [REDACTED] and possibly a 12:08:04

1

[REDACTED]

2

[REDACTED]

12:08:10

3

Q. So that's part of the circuitry, though?

12:08:12

4

A. Yeah.

5

Q. So if we say number 3 is the

[REDACTED]

[REDACTED]

would that capture everything that you're

12:08:19

6

talking about?

12:08:20

7

A. With the clarification that circuitry

12:08:22

8

involves a channel, both receive and transmit, then I

12:08:26

9

can agree to that.

12:08:27

10

Q. Fair enough.

12:08:28

11

So there were three, generally, things, now

12:08:29

12

that we've kind of established our terminology, that

12:08:33

13

you say --

12:08:36

14

A. Sorry. Did you include the focal length of

12:08:40

15

the lens Gaetan was designing?

12:08:41

16

Q. No.

12:08:41

17

A. That's important.

12:08:43

18

Q. Okay. So add that as number 4, focal length

12:08:48

19

of lens. All right.

12:08:51

20

So the [REDACTED] that you're talking

12:08:54

21

about -- the issue that you're talking about there is

12:08:58

22

that

[REDACTED]

[REDACTED]

23

[REDACTED]

right?

12:09:08

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. I think you misspoke. The resulting [REDACTED]
[REDACTED]
[REDACTED] 12:09:20

4 Q. I see. 12:09:21

5 So the fact that you needed to have the 12:09:23

6 [REDACTED]
[REDACTED] is that basically 12:09:31

8 it or am I messing it up again? 12:09:34

9 MR. KIM: Objection; form. 12:09:35

10 THE WITNESS: It was the [REDACTED]
[REDACTED] -- 12:09:39

12 BY MR. JAFFE:

13 Q. I see. 12:09:39

14 A. -- that required them eventually to [REDACTED]
[REDACTED] 12:09:45

16 Q. And the [REDACTED]
[REDACTED] is that right? 12:09:49

18 A. The [REDACTED]
[REDACTED]
[REDACTED] 12:09:59

21 Q. And -- okay. And the spacing, that's what 12:10:08

22 Mr. Boehmke -- continue to mispronounce his name 12:10:14

23 probably correctly -- he provided to you in November 12:10:16

24 of 2016? 12:10:17

25 A. Yes, he provided the angular spacing, if I 12:10:20

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 may. 12:10:21

2 Q. Okay. We'll get to that a little bit later. 12:10:25

3 Mr. Boehmke didn't provide you how many 12:10:29

4 boards to use; right? 12:10:30

5 A. Right. 12:10:30

6 Q. And then the FAC lens, that was provided by 12:10:35

7 Mr. Pennecot; right? 12:10:36

8 A. That is my understanding. 12:10:39

9 Q. He came up with the FAC lens design; right? 12:10:42

10 A. That's my understanding. 12:10:44

11 Q. And it's a [REDACTED] FAC lens; right? 12:10:47

12 MR. KIM: Objection; form. 12:10:48

13 THE WITNESS: It's [REDACTED] 12:10:51

14 BY MR. JAFFE: 12:10:51

15 Q. That's larger than -- sorry. 12:10:53

16 A. It's [REDACTED]

[REDACTED] 12:10:59

18 Q. Do you know how large the FAC lenses are for 12:11:03

19 Velodyne's devices? 12:11:05

20 [REDACTED] 12:11:16

23 Q. Do you know how large it is?

24 A. Are you asking diameter or are you asking

25 length?

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. To compare it to [REDACTED] 12:11:17

2 A. To compare it to [REDACTED]

[REDACTED] 12:11:24

4 Q. And so that lens design came from 12:11:30

5 Mr. Pennecot and the circuitry came from Florin; is 12:11:33

6 that right? 12:11:34

7 A. Yes. 12:11:34

8 Q. So none of those folks came up with [REDACTED]

[REDACTED] right? 12:11:45

10 MR. KIM: Objection; form. 12:11:47

11 THE WITNESS: They were certainly involved in the 12:11:49

12 decision to go to [REDACTED] because I 12:11:53

13 had to consult with them in terms of what would be 12:11:56

14 possible for circuit spacing, in the case of Florin. 12:12:00

15 And to make sure that Gaetan's group lens can handle 12:12:06

16 the [REDACTED] 12:12:09

17 BY MR. JAFFE:

18 Q. And just to go back to your declaration here, 12:12:12

19 this diagram that you're showing in Figure 6 in 12:12:16

20 paragraph 13, there's no discussion in here of [REDACTED]

[REDACTED] right? 12:12:22

22 A. There's no discussion of [REDACTED]

[REDACTED] in Figure 6. Although if you understand Figure 12:12:31

24 6, it could be easily derived. 12:12:36

25 Q. That wasn't my question. 12:12:36

1 My question is, there's no discussion o [REDACTED]
[REDACTED] right? 12:12:40

3 A. Yes. 12:12:40

4 Q. All right. So . . . is there any evidence 12:12:55
5 that you're aware of that Uber was considering a 12:13:03
6 [REDACTED] device before November 2016? 12:13:12

7 A. I'm not aware of anything. 12:13:28

8 MR. JAFFE: This is going to be 153. 12:13:31
9 Actually . . . acutally, I'll come back to that.

10 BY MR. JAFFE: 12:13:31

11 Q. All right. Let's go to 151, your original 12:14:05
12 declaration, in particular, paragraph 18. 12:14:15

13 So here you mention some custom beam spacing 12:14:39
14 provided by Mr. Boehmke on November 4th, 2016. 12:14:44

15 Do you see that? 12:14:44

16 A. Yes. 12:14:44

17 Q. And then later you said, "My team imported 12:14:48
18 this data." 12:14:50

19 A. Um-hum. Yes. 12:14:57

20 Q. You don't cite -- in your declaration, you 12:15:00
21 don't cite any contemporaneous document to support 12:15:05
22 this idea; right? 12:15:06

23 A. Are you referring to the idea of importing 12:15:09
24 the data? 12:15:10

25 Q. Right. 12:15:11

Page 85

1 "Question: So the only evidence that we have
2 that what Mr. Boehmke provided you in
3 November 2016 -- that that information formed
4 the basis of the beam spacing in the Fuji
5 design is based on this part of your
6 declaration?") 12:17:25

7 MR. KIM: Objection; form. 12:17:48

8 THE WITNESS: I would say, no, I believe you have 12:17:50
9 other evidence that not only shows the document that 12:17:55
10 Scott generated, but also you have the laser boards 12:17:58
11 themselves. 12:17:59

12 BY MR. JAFFE: 12:17:59

13 Q. Right. 12:17:59

14 And what I'm saying is, tying the two 12:18:01
15 together, the only evidence we have is what's here in 12:18:05
16 your declaration; right? 12:18:06

17 MR. KIM: Objection; form. 12:18:10

18 THE WITNESS: I can only say I'm not aware that 12:18:12
19 you have other evidence to tie those two together. 12:18:15

20 BY MR. JAFFE: 12:18:15

21 Q. And so let's just talk about evidence that we 12:18:18
22 do have, which is your declaration here. 12:18:20

23 A. Okay.

24 Q. So you said you imported the data into Zemax; 12:18:24
25 right? 12:18:24

Page 87

1 there's a file that defines them for the purpose of 12:19:46
2 doing the actual die attach and they're defined in the 12:19:50
3 laser PCB file package that was sent to Gorilla. 12:19:56
4 Q. Sorry. I want to try and focus us again. 12:20:00
5 I'm asking you, sitting here today -- 12:20:02
6 A. Yes.
7 Q. -- what are the resultant emitting points of 12:20:07
8 the laser diodes that you refer to here, the numbers? 12:20:09
9 A. I don't have them off the top of my head.
10 Q. So you can't, sitting here today, tell me 12:20:13
11 what the resulting emitting points of the laser diodes 12:20:16
12 are; fair? 12:20:17
13 A. Fair, with caveat, I can find them from a 12:20:20
14 document in a straightforward manner. 12:20:22
15 Q. And then the data that was exported to the 12:20:32
16 SolidWorks CAD software, you don't cite or attach that 12:20:37
17 to your original declaration either; right? 12:20:40
18 A. I don't. 12:20:42
19 Q. And the specific resulting emitting diodes 12:20:45
20 that you referred to in the prior sentence, you don't 12:20:48
21 cite or attach that to your declaration; right? 12:20:50
22 A. Sorry, I lost you there. Could you repeat 12:20:54
23 the question. 12:20:55
24 Q. The resultant emitting points of the laser 12:20:58
25 diodes that you referred to on line 26 of your 12:21:01

1 declaration, you don't cite or attach that to your 12:21:03
2 declaration; right? 12:21:04
3 A. I don't believe they're in this declaration, 12:21:09
4 no. 12:21:09
5 Q. Can you tell me, for the resulting emitting 12:21:20
6 points of the laser diodes, whether those resultant 12:21:23
7 emitting points that you refer to in your declaration 12:21:27
8 were for [REDACTED]? 12:21:31
9 A. Yes, they are. 12:21:36
10 Q. Okay. And how do you know that? 12:21:39
11 A. I know that because I know -- I've looked 12:21:46
12 at -- independent of this declaration, I have looked 12:21:50
13 at the file that defines the coordinate locations for 12:21:55
14 [REDACTED]
[REDACTED] I know these also 12:22:04
16 by finding the similar values in the PCB file that was 12:22:09
17 sent to Gorilla for one of those boards. 12:22:12
18 Q. So the initial optical cavity designs that 12:22:26
19 are referred to on the next page of your declaration, 12:22:31
20 what are you referring to there? 12:22:33
21 A. This would be CAD file. The optical cavity 12:22:50
22 is the mechanical housing that holds the lens. We 12:22:53
23 eventually have a CAD model that includes the housing, 12:22:56
24 the lens, PCBs with coordinates for the laser diodes 12:23:04
25 in one CAD file. 12:23:05

1 Q. So just going back to what we were talking 12:23:09
2 about earlier, you're saying that Mr. Boehmke provided 12:23:12
3 you the custom beam spacing and you imported that data 12:23:17
4 into Zemax to determine the resultant emitting points 12:23:23
5 of the laser diodes, and those you just picked as a 12:23:28
6 first matter, [REDACTED] 12:23:32

7 MR. KIM: Objection; form. 12:23:36

8 THE WITNESS: We didn't pick it as first matter. 12:23:38
9 We discussed this already, that I would have loved to 12:23:41
10 [REDACTED] and we found we couldn't do 12:23:45
11 that. [REDACTED] We decided we had 12:23:45
12 to [REDACTED]

[REDACTED] That decision went 12:23:58
14 into the first -- earliest CAD designs of the optical 12:24:04
15 cavity for Fuji. 12:24:06

16 BY MR. JAFFE: 12:24:06

17 Q. So you didn't do any sort of other Zemax 12:24:08
18 simulations of other board and diode arrangements? 12:24:14

19 A. I'm not aware. I don't recall doing any CAD 12:24:19
20 designs for other board arrangements. 12:24:23

21 Q. So by November 4th, 2016, you and your team 12:24:29
22 had already arrived at [REDACTED]

[REDACTED] is that right? 12:24:35

24 A. It's possible that that was by November 4th. 12:24:40
25 It's also possible that it was shortly after the 4th. 12:24:44

1 Q. So you -- sorry. 12:24:46

2 A. There's a potential for a time lag from 12:24:50

3 Scott's prescribed beam angles and when we actually 12:24:55

4 did the determination of six total boards and got 12:24:59

5 those into a CAD model. 12:25:01

6 Q. And you only started the Fuji project at the 12:25:03

7 end of October; right? 12:25:05

8 A. Yes.

9 Q. So you came up with the [REDACTED]

[REDACTED] design in a week, approximately? 12:25:14

11 MR. KIM: Objection; form. 12:25:16

12 THE WITNESS: I don't know if it was exactly a 12:25:17

13 week. Or could have been more than a week, but it was 12:25:20

14 something on the order of a week. 12:25:22

15 BY MR. JAFFE: 12:25:22

16 Q. About a week? 12:25:24

17 A. Within some small multiple of one week. One 12:25:30

18 week, two weeks, three weeks possible, yes, on a very 12:25:34

19 short time scale. 12:25:36

20 Q. And you didn't -- after receiving these beam 12:25:41

21 spacings from Mr. Boehmke, you didn't even consider 12:25:44

22 other designs other than [REDACTED]

[REDACTED] right? 12:25:51

24 A. That feels a little out of sequence. So I 12:25:59

25 believe we got the angles from Scott for our sensor. 12:26:05

1 The decision for how many boards to place them on 12:26:08
2 would have to occur after we knew what those angles 12:26:12
3 were. 12:26:13

4 Q. So you got the custom beam spacing from 12:26:32
5 Mr. Boehmke; and then one to three weeks later, you 12:26:37
6 knew you were doing [REDACTED]

[REDACTED] ? 12:26:43

8 A. Yes. 12:26:43

9 Q. And at that time, in between receiving 12:26:46
10 Mr. Boehmke's custom beam spacing, you didn't 12:26:50
11 consider -- even consider any other designs other than 12:26:52

12 [REDACTED] 12:26:57
13 right? 12:26:57

14 A. No. When Scott gave us the prescribed 12:27:02
15 angles, we had to first consider [REDACTED]

[REDACTED] And that was the process we've already 12:27:07
17 discussed to arrive at [REDACTED] but that's after 12:27:11
18 Scott originally told us what the angles would be. 12:27:14

19 Q. But I'm confused. 12:27:15

20 Because when we were talking earlier about 12:27:17
21 after you received the data, you said you only 12:27:19
22 provided one summary into Zemax and that was [REDACTED]

[REDACTED] 12:27:24

24 A. Yes. 12:27:24

25 Q. So you didn't even -- when you were looking 12:27:27

1 at other options, you didn't even do one simulation of 12:27:30
2 another option? 12:27:31
3 A. I don't think we did. I don't recall doing 12:27:34
4 any others. 12:27:35
5 Q. So must have been a pretty short decision to 12:27:38
6 arrive at [REDACTED] if 12:27:42
7 you didn't even simulate another option? 12:27:46
8 A. Yeah. It didn't take a long time to find out 12:27:49
9 [REDACTED]
10 Q. Because you had the custom beam spacing from 12:27:52
11 Mr. Boehmke, the FAC lens, the size of the circuitry 12:27:54
12 and the focal length of the lens designed by 12:27:56
13 Mr. Pennecot; right?
14 A. Already had those. 12:27:59
15 Q. So because you had all that information, you 12:28:00
16 were steered very quickly to [REDACTED]
[REDACTED] do you agree with that? 12:28:07
18 MR. KIM: Objection; form. 12:28:09
19 THE WITNESS: I would agree that it was a very 12:28:11
20 quick decision to arrive at [REDACTED] 12:28:14
21 yeah. 12:28:14
22 BY MR. JAFFE: 12:28:14
23 Q. And would you say that if one of those 12:28:18
24 factors was more important than another in arriving at 12:28:21
25 that design, that it drove that design more than any 12:28:25

1 others of the four that we talked about? 12:28:27

2 A. It's hard to -- if all of those are required 12:28:35

3 elements, it's hard to say one would be more 12:28:39

4 important, but if you want to say one was more 12:28:43

5 important, it could have a stronger influence. 12:28:46

6 Q. Which one would that be? 12:28:48

7 A. I don't believe these are necessarily -- 12:28:51

8 Q. And you're looking at my handwriting. Don't 12:28:53

9 look at my handwriting. I'm happy to go through these 12:28:58

10 things with you. 12:28:59

11 A. Let's list them off. 12:29:02

12 [REDACTED] we had that originally 12:29:04

13 designed sometime, quite a while earlier, a long lead 12:29:07

14 time.

15 Q. What do you mean quite a while earlier? 12:29:09

16 A. In our previous discussion -- deposition, we 12:29:12

17 talked about -- I think we called it [REDACTED] or 12:29:17

18 something like that. So basically shortly after 12:29:20

19 joining Otto, Gaetan was working on this FAC lens. 12:29:24

20 Q. Why was he working on it? 12:29:25

21 A. I presume, but I don't know, that they were 12:29:28

22 considering a design like this even before I joined. 12:29:32

23 Q. And did you have any idea as to any 12:29:38

24 commonalities between the FAC lens that Mr. Pennecot 12:29:43

25 was working on and Mr. Levandowski's prior work at 12:29:46

1	Google?	12:29:47
2	A. No.	12:29:47
3	Q. You didn't have any understanding?	12:29:49
4	A. No.	12:29:49
5	Shall we go back to our list in terms of	12:29:56
6	elements that are important?	12:29:57
7	Q. Let me see if I can short-circuit this.	12:30:00
8	My understanding is you're saying they were	12:30:02
9	all required, so one isn't more important than the	12:30:06
10	other; is that fair?	12:30:07
11	A. That's fair.	12:30:08
12	Q. So then we don't need to go through them.	12:30:11
13	Let's turn to page 17 of your declaration.	12:30:14
14	A. Page or paragraph?	12:30:17
15	Q. Excuse me. Paragraph 17.	12:30:21
16	A. Okay.	12:30:21
17	Q. It's on page 11.	12:30:23
18	A. Thank you.	12:30:24
19	Q. And I'm in your supplemental declaration,	12:30:28
20	which is 152.	12:30:30
21	MR. KIM: What paragraph?	12:30:34
22	MR. JAFFE: 17. It's the long paragraph, so it's	12:30:38
23	page 11 if you're looking for it.	12:30:40
24	BY MR. JAFFE:	12:30:40
25	Q. So there are two things labeled here, Figure	12:30:45

1	8A and 8B.	12:30:48
2	Do you see that?	12:30:49
3	A. Yes.	12:30:49
4	Q. So just for clarification here, the letters	12:30:55
5	that are on there, those are letters that you added	12:30:58
6	for purposes of your declaration; right?	12:30:59
7	A. Yes, those were added for this declaration.	12:31:04
8	Q. In the document as it was created in November	12:31:06
9	2016, it did not have these letters on it; right?	12:31:09
10	A. Right.	12:31:09
11	Q. So this is a modified version for your	12:31:12
12	declaration?	12:31:13
13	A. Yes.	12:31:14
14	Q. And if we go to the November 2016 data that	12:31:22
15	you were looking at that formed the basis of this, it	12:31:28
16	did not include these letterings; right?	12:31:29
17	A. Right.	12:31:29
18	Q. So in November 2016, there was no --	12:31:36
19	Mr. Boehmke did not provide the distribution of these	12:31:40
20	beams onto particular boards; right?	12:31:43
21	A. Right.	12:31:43
22	Q. So the November 2016 data from Mr. Boehmke,	12:31:55
23	that did not provide any information as to how these	12:31:59
24	beams would be distributed [REDACTED]	[REDACTED]
	[REDACTED] right?	12:32:04

Page 97

1 Q. So no one should be confused as to whether 12:33:30
2 this data is originally from November 2016 in terms of 12:33:35
3 the [REDACTED] right? 12:33:37
4 A. Nobody should be confused that the [REDACTED] 12:33:41
5 had come from Scott, because it did not. 12:33:43
6 Q. Right. You added it in here for purposes of 12:33:45
7 your declaration? 12:33:46
8 A. Yeah. 12:33:46
9 Q. All right. So you've mentioned -- I want to 12:33:50
10 just clarify a little bit of terminology here. What's 12:33:55
11 shown here at the end of paragraph 17 is talking about 12:34:00
12 angles; right? 12:34:01
13 A. Right. 12:34:01
14 Q. And what angle are we talking about? 12:34:04
15 A. We're talking about the vertical angle 12:34:08
16 reference to a horizontal plane measured in degrees 12:34:12
17 such that positive numbers are above horizontal, 12:34:18
18 negative numbers are below horizontal. 12:34:20
19 Q. Okay. Are you familiar with the concept of 12:34:23
20 beam spacing? 12:34:24
21 A. Perhaps you could clarify. 12:34:26
22 Q. Let's go back to the prior page. And to page 12:34:35
23 10. The heading, do you see it says "Beam spacing in 12:34:41
24 Fuji"? 12:34:41
25 A. Um-hum. 12:34:42

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. "Beam spacing," what do you mean? 12:34:44

2 A. So beam spacing can be used to refer to the 12:34:49

3 [REDACTED]

[REDACTED] Since it refers to [REDACTED]

[REDACTED]

[REDACTED] 12:35:10

7 Q. When you are saying [REDACTED] -- what you're 12:35:12

8 saying -- when you're talking about [REDACTED]

[REDACTED]

[REDACTED] is that fair? 12:35:20

11 A. That's fair. 12:35:20

12 Q. Just to be clear, again, when -- we're going 12:35:24

13 back to the end of paragraph 17. You are not talking 12:35:27

14 about [REDACTED]

[REDACTED] right? 12:35:33

16 MR. KIM: Objection; form. 12:35:36

17 THE WITNESS: This does not refer to the absolute 12:35:38

18 positions of the diodes. I'm referring to the end of 12:35:40

19 paragraph 17. The figure refers to the angular 12:35:44

20 prescribed angles. 12:35:47

21 BY MR. JAFFE: 12:35:47

22 Q. So I want to introduce a new term here. 12:35:50

23 You're familiar -- when we have the diodes, 12:35:53

24 one way that they're represented, they're position is 12:35:56

25 X and Y; right? 12:35:58

Page 99

Page 100

1 MR. KIM: We've been going over an hour. Can we 12:37:24

2 break for lunch? 12:37:26

3 MR. JAFFE: Yes, we can break. 12:37:28

4 THE VIDEOGRAPHER: We are off the record at 12:37 12:37:30

5 p.m. 12:37:30

6 (Lunch recess was taken at 12:37 p.m.) 12:37:30

7 (Nothing omitted or deleted. See next page).

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 AFTERNOON SESSION 1:38 P.M.
2 - - -
3 THE VIDEOGRAPHER: We are back on the record at 13:38:23
4 1:38 p.m. 13:38:24
5 EXAMINATION RESUMED 13:38:24
6 BY MR. JAFFE: 13:38:24
7 Q. Welcome back. 13:38:28
8 A. Thank you. 13:38:28
9 Q. I want to turn to your original declaration. 13:38:31
10 I think it's 151. And in particular, in paragraph 20, 13:38:39
11 you state, "There are approximately [REDACTED] employees 13:38:41
12 currently working on the Fuji project." 13:38:44
13 Is that right? 13:38:45
14 A. Yes, I see it. 13:38:48
15 Q. How many employees are working at Uber on 13:38:54
16 LiDAR-related responsibilities? 13:38:56
17 MR. KIM: Objection; form. 13:39:02
18 THE WITNESS: There would be approximately [REDACTED] 13:39:03
19 employees at Uber working on LiDAR responsibilities 13:39:06
20 that I'm aware of. 13:39:10
21 BY MR. JAFFE: 13:39:10
22 Q. Your understanding is that there are only [REDACTED] 13:39:12
23 employees at Uber with LiDAR-related responsibilities; 13:39:16
24 is that right? 13:39:17
25 MR. KIM: Objection; form. 13:39:19

Page 102

1 THE WITNESS: When I came up with the number, I 13:39:22
2 wanted to pick ones -- employees that had primary 13:39:26
3 responsibilities on LiDAR. 13:39:29
4 BY MR. JAFFE: 13:39:29
5 Q. So let me ask my question again then. 13:39:32
6 What is the number of employees at Uber that 13:39:37
7 have LiDAR-related responsibilities or projects? 13:39:43
8 MR. KIM: Objection; form. 13:39:43
9 THE WITNESS: I don't know off the top of my head 13:39:46
10 how many more employees have minor LiDAR 13:39:48
11 responsibilities. 13:39:50
12 BY MR. JAFFE: 13:39:50
13 Q. So when you're talking about this number of 13:39:52
14 employees here, you're not talking about the number of 13:39:54
15 employees working on LiDAR entirely at Uber; right? 13:39:59
16 MR. KIM: Objection; form. 13:40:02
17 THE WITNESS: Correct. I believe there may be a 13:40:07
18 few more employees that also have some minor 13:40:11
19 responsibility for LiDAR activities. 13:40:15
20 BY MR. JAFFE: 13:40:15
21 Q. What LiDAR technology are they working on? 13:40:18
22 A. They're not working on LiDAR technology. 13:40:21
23 They're working on perhaps sourcing components, just 13:40:26
24 general supply chain people. 13:40:28
25 Q. Okay. Are there any other LiDAR projects 13:40:32

1 within Uber other than the Fuji project? 13:40:35

2 A. No, there's not. 13:40:37

3 Q. You're not working on building LiDARs with 13:40:40

4 third-party companies? 13:40:42

5 MR. KIM: Objection; form. 13:40:44

6 THE WITNESS: I'm not working on LiDAR projects 13:40:48

7 with third-party companies. 13:40:50

8 BY MR. JAFFE: 13:40:50

9 Q. Right. So let me ask my question a little 13:40:53

10 bit differently. 13:40:53

11 Is Uber working on designing LiDARs with 13:40:58

12 third-party companies? 13:40:59

13 MR. KIM: Objection; form. 13:41:00

14 THE WITNESS: I think Scott Boehmke is working 13:41:05

15 with some third-party LiDAR suppliers. 13:41:09

16 BY MR. JAFFE: 13:41:09

17 Q. Who's he working with? 13:41:12

18 A. I am aware of [REDACTED] 13:41:13

19 Q. Um-hum.

20 A. There's [REDACTED] There is -- and I'll say 13:41:31

21 this confidential information. There's [REDACTED] 13:41:35

22 I'm not aware of any others at this point. 13:41:40

23 MR. KIM: At this point I'll just designate the 13:41:42

24 transcript attorneys' eyes only. 13:41:46

25 MR. JAFFE: What number are we at? 13:41:48

1 THE REPORTER: 153. 13:41:50

2 MR. JAFFE: Okay. So this is going to be 153. 13:41:53

3 (Plaintiff's Exhibit 153 was marked.) 13:42:07

4 BY MR. JAFFE:

5 Q. So I'll just tell you for the record, this 13:42:09

6 was a document that Uber's lawyers prepared and 13:42:13

7 submitted to the court. That's where we got this 13:42:17

8 from. 13:42:18

9 A. Um-hum. 13:42:19

10 Q. Now, you were talking earlier about [REDACTED] folks 13:42:23

11 working on the Fuji project and that that's the only 13:42:26

12 LiDAR project. If you look at Section 2 here -- and 13:42:29

13 you can see my handwriting on this copy. Actually, I 13:42:33

14 hope my math is right, but on the bottom, on the 13:42:36

15 second page, I totaled it up. And I counted about [REDACTED] 13:42:40

16 employees here that said that they have LiDAR-related 13:42:43

17 responsibilities or projects. 13:42:45

18 A. Okay. 13:42:46

19 Q. What are those other folks doing? 13:42:48

20 A. I don't know what all these other people are 13:42:56

21 doing. So, for instance -- shall we just go down the 13:43:06

22 list? 13:43:06

23 Q. Well, let me ask generally. 13:43:09

24 If they're not working on Fuji, but they're 13:43:11

25 working on LiDAR, what are they working on? 13:43:15

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. If they're not working on Fuji . . . so let's 13:43:20
2 take -- I don't know if Phillip Haban, I don't know 13:43:26
3 what he's working on. I don't know Jacob Fischer. I 13:43:31
4 don't know what he's working on. Robert Doll, 13:43:34
5 he's -- I know he's an employee for the Pittsburgh 13:43:40
6 team. He's related to the hardware group or some 13:43:47
7 manufacturing aspect of that, but I don't know what 13:43:50
8 he's working on. 13:43:52

9 Sean Chin, I don't know who that is. Not 13:44:07
10 sure who Jay Kuvelker is and what he's working on. 13:44:13
11 Anthony Levandowski, he's a manager. I don't know how 13:44:19
12 he's working on Fuji or what he's working on. I would 13:44:23
13 say he's not working on Fuji, but we already 13:44:27
14 established that. 13:44:28

15 Q. Actually, why don't we pause there for a 13:44:30
16 second. 13:44:30

17 For the [REDACTED] employees in your declaration, 13:44:32
18 does that include Mr. Levandowski? 13:44:34

19 A. No. 13:44:34

20 Q. So if he has LiDAR-related responsibilities 13:44:37
21 or projects here in Section 2 of this document, you 13:44:42
22 don't know what those are; is that fair? 13:44:44

23 A. I would say so. 13:44:45

24 And if I can be more clear about the [REDACTED] 13:44:53
25 employees currently working on the Fuji project, I do 13:44:56

Page 106

1 mean people working directly on the Fuji project. I 13:45:00
2 did not include people who were some levels of 13:45:03
3 management up who had some sort of dotted line or 13:45:06
4 eventual path of ownership or responsibility. I was 13:45:12
5 coming up with [REDACTED] as people tha I felt I c uld 13:45:14
6 solidly say would be adversely affected if the Fuji 13:45:19
7 project ended. 13:45:21

8 So there's still a lot of names on here. For 13:45:29
9 instance, take Ana Rayo, she's in a supply chain 13:45:32
10 group. She's responsible, I think, for some aspects 13:45:36
11 of receiving material. I would not have counted her 13:45:39
12 as primarily working on Fuji. 13:45:41

13 Q. Let me actually just stop you and ask a 13:45:44
14 different question, which is, how many of these people 13:45:47
15 you don't know what they're doing in terms of LiDAR 13:45:51
16 work. Can you just provide me a count? 13:45:54

17 A. Yep. 13:45:55

18 Q. And, actually, why don't we do this, I'm 13:46:01
19 going to hand you a pen. And why don't you just mark 13:46:04
20 the people that you don't know what they're doing with 13:46:06
21 LiDAR. 13:46:07

22 A. With LiDAR in general. Okay. 13:46:09

23 Q. Well, let me state it this way: You don't 13:46:11
24 know why they're on this list of "Defendants' 13:46:15
25 Officers, Directors, and Employees with LiDAR-Related 13:46:17

1 Responsibilities Or Projects"? 13:46:18

2 A. Okay. I will mark those. 13:46:20

3 (Witness complies.) 13:46:20

4 Okay. So these -- I've marked -- 13:48:19

5 Q. Can I have my pen back. 13:48:21

6 A. Sorry. 13:48:21

7 I've marked those for whom I don't know what 13:48:24

8 they're working on. 13:48:25

9 Q. Can you just tell me how many you've marked? 13:48:28

10 A. Sorry. 13:48:29

11 Thirteen.

12 Q. So those are 13 employees that Uber's lawyers 13:48:40

13 said had LiDAR-related responsibilities or projects 13:48:43

14 and they don't work on the Fuji, but you don't know 13:48:46

15 what they work on? 13:48:47

16 A. That's correct, to my knowledge. 13:48:50

17 Q. And then you mentioned that Uber was working 13:48:52

18 with some suppliers, third parties, on LiDAR and you 13:48:56

19 mentioned [REDACTED] And then what else? 13:49:00

20 A. [REDACTED] 13:49:01

21 Q. [REDACTED] 13:49:02

22 Anyone else? 13:49:05

23 A. Perhaps, yeah. [REDACTED] I don't think I'm 13:49:28

24 aware of any other development activities. 13:49:32

25 Q. So let's look at Section 3 here. You see it 13:49:37

1 says, "List of defendant suppliers and consultants who 13:49:40
2 have LiDAR-related responsibilities or projects"? 13:49:42
3 A. Okay. 13:49:43
4 Q. Is [REDACTED] listed here? 13:49:59
5 A. Nope. 13:49:59
6 Q. So [REDACTED] is a Li AR supplier that's not 13:50:03
7 listed on this list of defendant suppliers? 13:50:07
8 MR. KIM: Objection; form. 13:50:10
9 THE WITNESS: Yes. 13:50:11
10 BY MR. JAFFE: 13:50:11
11 Q. What about [REDACTED] is that on here? 13:50:15
12 A. Nope. 13:50:22
13 Q. Okay. And what about [REDACTED] is that on 13:50:29
14 here? 13:50:29
15 A. Nope. 13:50:34
16 Q. And then I think [REDACTED] actually is on here; 13:50:38
17 right? 13:50:38
18 A. Yes. 13:50:41
19 Q. And what are you guys doing with [REDACTED] 13:50:45
20 A. I believe -- I believe we're buying some demo 13:50:51
21 units or some early evaluation units. 13:50:54
22 Q. You're working with them on designing a 13:50:58
23 custom LiDAR; right? 13:50:59
24 A. They're developing a new LiDAR. I don't know 13:51:02
25 that it's custom for us or just -- I don't know that 13:51:05

1 detail.

2 Q. Are you providing them any Uber confidential 13:51:09
3 information.

4 A. I'm not aware of that happening, no. 13:51:12

5 Q. So there is no Uber confidential information 13:51:16
6 that is going from Uber to [REDACTED] is that true? 13:51:21

7 A. I'm not aware of any. 13:51:23

8 MR. JAFFE: Let's mark -- where is that thing? 13:51:31

9 This one? No. It's this one. This is going to be 13:51:45
10 Exhibit . . . 13:51:48

11 THE REPORTER: 154. 13:51:50

12 MR. JAFFE: -- 154. 13:51:50

13 Thank you. 13:51:52

14 (Plaintiff's Exhibit 154 was marked.) 13:52:13

15 BY MR. JAFFE:

16 Q. So I've marked as Exhibit 159 [sic] a 13:52:15
17 document that's heavily redacted. But I just want to 13:52:17
18 ask --

19 MR. KIM: 159? 13:52:21

20 MR. JAFFE: Yeah, Exhibit 159. 13:52:24

21 MR. KIM: 154. 13:52:25

22 MR. JAFFE: Oh, my handwriting is off. 13:52:27

23 BY MR. JAFFE: 13:52:27

24 Q. 154 is a document that's heavily redacted. 13:52:31

25 Is this an e-mail exchange with [REDACTED] 13:52:36

Page 111

Page 112

1 [REDACTED] while the final dimensions it would 13:56:40
2 be used for fiducial-based diode placement is not yet 13:56:53
3 defined for [REDACTED] 13:56:56
4 MR. JAFFE: Let's mark as Exhibit 155 a document 13:57:01
5 entitled, "Exhibit B." 13:57:03
6 BY MR. JAFFE:
7 Q. It looks like you have it. 13:57:06
8 A. Yes. 13:57:06
9 Q. Did you bring your declaration with you? 13:57:08
10 A. Yeah. 13:57:09
11 Q. Why don't we look at your copy then, but 13:57:11
12 we'll just mark this for the record so we have a 13:57:14
13 complete record. 13:57:15
14 MR. JAFFE: Just for the record, I'm marking 13:57:19
15 Exhibit B as 155. And Mr. Haslim is looking at his 13:57:24
16 own copy. 13:57:25
17 (Plaintiff's Exhibit 155 was marked.) 13:57:26
18 BY MR. JAFFE: 13:57:26
19 Q. So on the top right-hand side, there's a 13:57:32
20 little picture of a transmit board; right? 13:57:33
21 A. Right. 13:57:33
22 Q. And that's an image of one of the Fuji 13:57:37
23 transmit boards; correct? 13:57:38
24 A. Correct. 13:57:38
25 Q. And the table below, that includes some X,Y 13:57:44

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 and theta values for each of the diodes on the 13:57:50
2 transmit board depicted there? 13:57:53
3 A. Yes. 13:57:53
4 Q. So what does [REDACTED] refer to in this 13:57:58
5 chart? 13:57:59
6 A. In this chart, the term [REDACTED] labels 13:58:06
7 [REDACTED]
[REDACTED]
[REDACTED] 13:58:21
10 Q. And why are you providing [REDACTED]
[REDACTED]? 13:58:27
12 A. I believe the person who made this file 13:58:34
13 provided [REDACTED]
[REDACTED] -- that's the 13:58:44
15 wrong term -- so that [REDACTED]
[REDACTED]
[REDACTED] And these dimensions never left the 13:59:06
20 document. 13:59:07
21 Q. "These dimensions never left the document," 13:59:11
22 what do you mean? 13:59:12
23 A. The dimensions labeled [REDACTED] remain in 13:59:15
24 this document even as new information is being added 13:59:19
25 [REDACTED] 13:59:23

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. So the X and Y data here shows -- [REDACTED]
[REDACTED]
[REDACTED] right? 13:59:35

4 A. Yes. 13:59:36

5 Q. So the X and Y data for [REDACTED] shows 13:59:39
6 [REDACTED]
[REDACTED]
[REDACTED] right? 13:59:48

9 A. Right.

10 Q. Okay. And you said the person who created 13:59:56
11 this document. 13:59:57
12 Who are you referring to? 13:59:59

13 A. This document would have been created by 14:00:03
14 Gaetan Pennecot. 14:00:05

15 Q. And why would Mr. Pennecot include [REDACTED]
[REDACTED] in this document? 14:00:13

17 A. Gaetan did the original [REDACTED]
[REDACTED]
[REDACTED] And he was responsible 14:00:27
20 for [REDACTED]
[REDACTED] This information would 14:00:36
22 then have been given to our electrical engineer, who 14:00:38
23 did [REDACTED] for this. 14:00:40

24 Q. So that doesn't answer my question. 14:00:43
25 Why is [REDACTED] 14:00:45

Page 115

1

[REDACTED]

14:00:49

3

A. I'm sorry. I don't think I was clear before. 14:00:53

4

When Gaetan designed the outline of this 14:00:56

5

board and specified [REDACTED]

[REDACTED]

14:01:17

11

Q. So the original idea was [REDACTED]

14:01:22

13

A. No. 14:01:22

14

Q. So then let me ask my question again then. 14:01:25

15

What is the point of including [REDACTED]

-- in this chart?

14:01:30

17

A. This information could have been provided to 14:01:36

18

the electrical engineer so that [REDACTED]

14:01:43

20

And if he hasn't [REDACTED]

14:01:55

23

Q. Why do you think he did that? 14:01:57

24

A. He needs to [REDACTED] that's as 14:02:00

25

good as -- better than an outline of a board which is 14:02:03

Page 116

1 subject to change. 14:02:04

2 Q. At what point did the fiducial get 14:02:09

3 introduced? 14:02:10

4 A. The fiducial was introduced somewhere during 14:02:14

5 the course of the electrical engineer laying out the 14:02:17

6 circuit and defining all the pads for all the 14:02:19

7 components that go on the circuit board. 14:02:21

8 Q. Just to rewind a second, what is the point of 14:02:25

9 [REDACTED] again? 14:02:29

10 MR. KIM: Objection; form. 14:02:32

11 THE WITNESS: I believe the point of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

14:02:52

16 BY MR. JAFFE 14:02:52

17 Q. I see. Okay. 14:02:53

18 And the [REDACTED]

[REDACTED]

14:02:57

20 A. We say [REDACTED]

[REDACTED]

[REDACTED]

14:03:06

23 Q. And what are [REDACTED] used for? 14:03:11

24 A. Those [REDACTED]

[REDACTED]

14:03:19

1 [REDACTED] 14:03:23

2 Q. All right. Again Exhibit B here, I want to 14:03:34

3 start with Board A. 14:03:36

4 What's labeled as [REDACTED] those are 14:03:40

5 the X and Y data in terms of the absolute locations of 14:03:45

6 the diodes for Board A in the Fuji device; is that 14:03:50

7 right? 14:03:51

8 A. Yes. 14:03:52

9 Q. And is this current? Did they change or is 14:03:57

10 this still the right data? 14:03:59

11 A. To my knowledge, these are still the right 14:04:01

12 data. 14:04:02

13 Q. Has Uber changed [REDACTED]

[REDACTED] in the last three months? 14:04:13

15 A. Not to my knowledge. Last I saw, we had a 14:04:19

16 version of this as early as December 2nd with the 14:04:21

17 exact same X,Y coordinates. 14:04:26

18 Q. So let's take -- we're still on Board A. The 14:04:32

19 X value -- and we'll just use the fiducial one. The X 14:04:40

20 value, that will tell us the horizontal distance from 14:04:44

21 the fiducial to the emitting point to each laser; 14:04:49

22 right? That particular one.

23 A. Yes. The fiducial section, if I heard you 14:04:53

24 correctly, the X coordinate gives you the left-right X 14:04:56

25 dimension relative to the fiducial to the laser. 14:04:58

Page 118

1 There's two sections. One says [REDACTED] and 14:05:01
2 one says [REDACTED] I want to p int out 14:05:04
3 that those reference two different locations on the 14:05:07
4 laser diode. 14:05:10
5 Q. Just to restate that. 14:05:11
6 For A1, for example, in the first row -- 14:05:14
7 A. Yes.
8 Q. -- the X number is the horizontal distance 14:05:20
9 from the fiducial to the emitting point of each -- of 14:05:23
10 that laser? 14:05:24
11 A. I'm sorry. Could you specify which "X" 14:05:25
12 you're referring to?
13 Q. Under the fiducial. 14:05:27
14 So here, just for A1, it's [REDACTED] 14:05:35
15 A. Yes. 14:05:35
16 Q. That one, that's the horizontal distance from 14:05:38
17 the fiducial to the emitting point of A1 laser; right? 14:05:41
18 A. Yes. 14:05:41
19 Q. And again -- well, actually, not again. 14:05:45
20 What is the unit of measurement that we're 14:05:48
21 looking at here? 14:05:49
22 A. These would be X,Y coordinates in the units 14:05:54
23 of milliliters. 14:05:55
24 Q. And we are going to -- how many decimal 14:06:00
25 points in are we dealing with here? 14:06:03

1 A. These are six decimal places. 14:06:06

2 Q. Is that pretty accurate? 14:06:08

3 A. It's an unnecessary number of decimals. This 14:06:10
4 goes to nanometers. 14:06:13

5 Q. Yeah. So this is talking about aligning the 14:06:16
6 diodes to the nanometer; is that fair? 14:06:18

7 A. No. 14:06:18

8 Q. No? I thought you said it goes to 14:06:21
9 nanometers. 14:06:22

10 A. It goes to nanometers, but I don't think 14:06:24
11 anybody was under the impression that we're actually 14:06:25
12 in a position to get something to a nanometer scale.

13 Q. But that's what this document is listing? 14:06:28

14 A. This document lists the ideal dimension, yes, 14:06:32
15 down to the nanometer. 14:06:34

16 Q. Got it. 14:06:35

17 We talked about X. 14:06:38

18 Y, that talks about the millimeters 14:06:41
19 difference from the fiducial to A1 on the -- in the 14:06:48
20 vertical axis; right? 14:06:50

21 A. Right. 14:06:50

22 Q. [REDACTED]

[REDACTED] 14:07:03

24 MR. KIM: Objection; form. 14:07:06

25 THE WITNESS: [REDACTED] 14:07:09

1

8

BY MR. JAFFE:

9

Q. The theta column here, what does that tell

14:07:36

14:07:42

10

us?

14:07:42

11

A. That tells us, relative to some zero angle on

14:07:50

12

this board, which we can presume is either vertical or

14:07:55

13

horizontal, the ideal placement angle for the laser

14:08:00

14

diode on the board.

14:08:02

15

Q. We're just talking about A again, Board A.

14:08:11

16

Which is the

14:08:22

18

A. As the light is projected out past the

14:08:26

19

sensor, the

14:08:32

20

Q. All right. Am I correct then that

14:08:44

22

A. Yes, that's correct.

14:08:45

23

Q. Okay. So is it fair to say that

14:09:01

Page 122

Page 123

1 starting one, so that can be blank. And you can start 14:12:07
2 from the next one.

3 A. Perfect. So I will calculate these. 14:12:11

4 (Witness performs calculations.) 14:12:11

5 A. Okay. 14:16:45

6 Q. Thank you. You're handing this to me for me 14:16:48

7 to look at. All right. I'm going to hand it back to 14:16:59

8 you. 14:16:59

9 Exhibit 156 now reflects you've penciled in 14:17:03

10 the delta Y here. 14:17:07

11 In looking at this completed table, would you 14:17:13

12 agree that the delta Y values [REDACTED]

[REDACTED] 14:17:24

14 MR. KIM: Objection; form. 14:17:24

15 THE WITNESS: Yes, I would agree that the delta Y 14:17:31

16 values [REDACTED]

[REDACTED]

[REDACTED] 14:17:41

19 BY MR. JAFFE: 14:17:41

20 Q. Okay. In other words, [REDACTED]

[REDACTED]

[REDACTED] 14:17:52

23 MR. KIM: Objection; form. 14:17:55

24 THE WITNESS: It's true, the delta Y, [REDACTED]

[REDACTED] 14:18:01

1 [REDACTED] --

2 THE REPORTER: I'm sorry, I'm sorry. It's
3 true . . .

4 THE WITNESS: [REDACTED]

[REDACTED] 14:18:24

8 BY MR. JAFFE: 14:18:24

9 Q. And as we talked about before, as the 14:18:30

10 [REDACTED]

[REDACTED] right? 14:18:41

13 MR. KIM: Objection; form. 14:18:43

14 THE WITNESS: Yes, we agreed -- I agree that the 14:18:46

15 [REDACTED]

[REDACTED] 14:19:01

18 BY MR. JAFFE: 14:19:01

19 Q. So referring to this [REDACTED], you 14:19:05

20 would agree that [REDACTED]

[REDACTED] 14:19:20

25 MR. KIM: Objection; form. 14:19:25

1 THE WITNESS: Yes. 14:19:25

2 BY MR. JAFFE:

3 Q. Okay. You can put that aside, please. 14:19:30

4 We talked about Max Levandowski earlier. You 14:19:36

5 said he was on your team. 14:19:38

6 A. Yes. 14:19:40

7 Q. What does he do? 14:19:41

8 A. He's a mechanical engineer. He designs the 14:19:47

9 optical cavity that the lenses and the lasers and 14:19:52

10 detector boards attach to. 14:19:55

11 Q. Is what is his LiDAR experience? 14:19:58

12 A. I am not aware of any LiDAR experience prior 14:20:01

13 to working for Otto and Uber. 14:20:04

14 Q. Did he know a lot about LiDAR when he 14:20:07

15 started? 14:20:07

16 MR. KIM: Objection; form. 14:20:08

17 THE WITNESS: I don't know. 14:20:09

18 BY MR. JAFFE: 14:20:09

19 Q. He works for you; right? 14:20:10

20 A. He works for me. He worked for Otto before I 14:20:14

21 joined. 14:20:15

22 Q. When you joined, did he -- was he 14:20:18

23 sufficiently educated about how LiDAR works? 14:20:21

24 MR. KIM: Objection; form. 14:20:22

25 THE WITNESS: He seemed sufficiently educated as a 14:20:26

1 mechanical engineer. 14:20:27

2 BY MR. JAFFE: 14:20:27

3 Q. So that wasn't really my question. 14:20:29

4 A. Yes. 14:20:30

5 Q. So -- 14:20:31

6 A. I didn't quiz him on his LiDAR expertise, but 14:20:35

7 at the same time, I'll grant you that I was not aware 14:20:38

8 of any LiDAR expertise in his background prior to 14:20:42

9 Otto. 14:20:43

10 Q. Why -- well, actually, let me back up. 14:20:58

11 Do you know if Max Levandowski and Anthony 14:21:01

12 Levandowski are -- they're brothers; right? 14:21:04

13 A. That's my understanding. 14:21:05

14 Q. Do you know if they're close? 14:21:07

15 MR. KIM: Objection; form. 14:21:08

16 THE WITNESS: I don't know how close they are. 14:21:12

17 BY MR. JAFFE: 14:21:12

18 Q. Do you know about any conversations that they 14:21:13

19 had regarding LiDAR?

20 MR. KIM: Same objection. 14:21:14

21 THE WITNESS: No. 14:21:15

22 BY MR. JAFFE: 14:21:15

23 Q. And what does Max Levandowski -- excuse me -- 14:21:17

24 do at Otto today? 14:21:23

25 A. At Uber today? 14:21:25

1 Q. (Nods head affirmatively.) 14:21:25

2 A. He continues to be the mechanical engineer 14:21:29

3 responsible for designing the optical cavity that 14:21:32

4 mounts the lenses, the laser transmit block and the 14:21:36

5 receiver boards. 14:21:37

6 Q. Did he come up with the optical cavity design 14:21:41

7 for Fuji? 14:21:42

8 A. In as much as that responsibility refers 14:21:50

9 to -- 14:21:50

10 MR. KIM: Objection; form. 14:21:53

11 THE REPORTER: I'm sorry. 14:21:53

12 THE WITNESS: Inasmuch as that responsibility 14:21:55

13 refers to designing a mechanical housing, yes. He 14:22:01

14 designed that for Fuji. 14:22:02

15 BY MR. JAFFE: 14:22:02

16 Q. Who came up with the optical cavity design 14:22:05

17 for Fuji? 14:22:06

18 MR. KIM: Objection; form. 14:22:11

19 THE WITNESS: The optical cavity design for Fuji 14:22:14

20 is related to the lens and the lens requirements. So 14:22:19

21 Gaetan plays a responsibility for that. As a 14:22:23

22 mechanical element in terms of mounting and housing 14:22:27

23 those features, those components, Max Levandowski is 14:22:29

24 responsible for that aspect. 14:22:31

25 BY MR. JAFFE: 14:22:31

1 Q. So it's Mr. Pennecot and Mr. Max Levandowski 14:22:34
2 who came up with the optical cavity design for Fuji; 14:22:39
3 is that fair? 14:22:40
4 MR. KIM: Objection; form. 14:22:40
5 THE WITNESS: My hesitancy is I'm trying to decide 14:22:51
6 in my mind whether the transmit and receive components 14:22:54
7 also play a part -- are considered part of the optical 14:23:00
8 cavity. I think they fairly should be considered part
9 of the optical cavity.
10 So then I also add Will Treichler, Florin 14:23:05
11 Ignatescu contributing to the design of the 14:23:09
12 optical cavity for the Fuji, or coming up with it. 14:23:13
13 I would claim some responsibility as well because 14:23:22
14 I'm looking at the designs that these engineers 14:23:25
15 are generating. I could have contributed some 14:23:28
16 aspect as well. 14:23:30
17 BY MR. JAFFE: 14:23:30
18 Q. You could have or you did? 14:23:31
19 A. I'm sure I had some influence, yes. 14:23:35
20 Q. Going back to Max Levandowski, do you 14:23:43
21 know -- he and Anthony, do they live together? 14:23:46
22 A. I don't know. 14:23:48
23 Q. Do you know how much time they spend together 14:23:52
24 outside of the office? 14:23:53
25 A. I don't know that. 14:23:54

1 Q. Do you know how many conversations they may 14:23:56
2 have about LiDAR outside of the office? 14:23:59
3 A. I don't know that. 14:24:00
4 Q. Have you ever talked to Max Levandowski about 14:24:02
5 that? 14:24:03
6 A. About the number of conversations? 14:24:05
7 Q. About his discussions with Anthony. 14:24:07
8 A. No. 14:24:08
9 Q. Have you ever asked him? 14:24:10
10 A. Asked him what? 14:24:12
11 Q. Max Levandowski, about his conversations with 14:24:17
12 Anthony. 14:24:18
13 A. Not to my recollection. 14:24:20
14 Q. When the 14,000 files allegation came up, did 14:24:25
15 you ever discuss those with Max Levandowski? 14:24:28
16 A. No, not specifically. 14:24:29
17 Q. Are you aware of any discussions with Max 14:24:34
18 Levandowski that relate to the subject matter of this 14:24:38
19 lawsuit? 14:24:38
20 A. I'm not aware of conversations they may have 14:24:41
21 had. 14:24:42
22 Q. Did you ever think to ask Max whether any of 14:24:46
23 the allegations are true? 14:24:47
24 A. No. 14:24:47
25 Q. Have you joked with Max Levandowski about the 14:24:52

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1	14,000 files?	14:24:54
2	MR. KIM: Objection; form.	14:24:54
3	THE WITNESS: It's possible.	14:24:58
4	BY MR. JAFFE:	14:24:58
5	[REDACTED]	
	[REDACTED]	14:25:03
7	MR. KIM: Objection; form.	14:25:05
8	THE WITNESS: [REDACTED]	14:25:07
9	[REDACTED]	
	[REDACTED]	14:25:22
11	BY MR. JAFFE:	14:25:22
12	Q. You say alleged, but he's never denied that	14:25:28
13	he took them; right?	14:25:29
14	A. Define "took."	14:25:31
15	Q. Define "took"?	14:25:31
16	A. Yeah. Downloaded?	14:25:34
17	Q. Downloaded, yes.	14:25:36
18	A. Have I heard any claim that he didn't? But	14:25:38
19	as far as taking it to a computer off of Google's or	14:25:43
20	Waymo's campus, I have -- he hasn't talked about that.	14:25:47
21	Q. Are you aware of any evidence to dispute that	14:25:49
22	he downloaded the files, put them on a PCB -- excuse	14:25:52
23	me -- not a PCB, a USB and took them from Google?	14:25:56
24	A. No, I have no evidence to argue one way or	14:25:59
25	the other in that matter.	14:26:01

Page 131

1 Q. So just to be clear, your testimony about it 14:26:04
2 being alleged, you have no basis to say whether he 14:26:06
3 actually did that or not; right? 14:26:07
4 A. Exactly my point -- 14:26:10
5 MR. KIM: Objection to form.
6 THE WITNESS: -- yes. 14:26:12
7 BY MR. JAFFE: 14:26:12
8 Q. At the end of October 2017 -- we talked about 14:26:23
9 this pivot to Fuji. 14:26:25
10 A. Yes. 14:26:26
11 Q. Actually . . . going back to your surreply 14:27:01
12 declaration, there's a discussion about the pivot to 14:27:08
13 Fuji. Here we are. End of paragraph 11. 14:27:25
14 You said, "The LiDAR team's decision to 14:27:30
15 abandon the Spider project to work on Fuji was based 14:27:35
16 on the aforementioned design considerations and was 14:27:38
17 not at the instructions of Uber's legal team or due to 14:27:40
18 any legal issues." 14:27:41
19 Do you see that? 14:27:42
20 A. I'm sorry. I'm in the wrong place. Is this 14:27:48
21 the supplemental? 14:27:49
22 Q. 152. 14:27:50
23 A. 152. End of paragraph 11? 14:27:53
24 Q. Paragraph 10. Excuse me. 14:27:55
25 Do you see the sentence that I just read? 14:28:05

Page 132

Page 133

1 agreed to it or allowed it perhaps based on business 14:29:12
2 considerations. 14:29:13
3 Q. Do you know whether Uber legal provided any 14:29:17
4 input to Anthony that influenced his decision to agree 14:29:24
5 or disagree with your decision to pivot to Fuji? 14:29:28
6 MR. KIM: Objection; form. 14:29:30
7 THE WITNESS: No, I cannot be aware of any 14:29:32
8 potential conversations between Anthony and legal 14:29:35
9 department. 14:29:36
10 BY MR. JAFFE: 14:29:36
11 Q. So you have no idea whether Anthony's 14:29:39
12 approval of the pivot was at all influenced by legal 14:29:43
13 issues or Uber's legal team; right? 14:29:46
14 MR. KIM: Objection; form. 14:29:47
15 THE WITNESS: I have to agree that I don't have 14:29:49
16 such knowledge, yes. 14:29:57
17 BY MR. JAFFE: 14:29:57
18 Q. What is your basis for saying that the 14:30:01
19 decision to pivot -- and I'm referring to the overall 14:30:03
20 decision -- was not at the instructions of Uber's 14:30:07
21 legal team or due to any legal issues? 14:30:10
22 A. So you're referring to the overall decision 14:30:17
23 to include Anthony, but when I wrote this and what my 14:30:20
24 intention was to explain the origination of the pivot. 14:30:25
25 The reason why we pivoted had no influence from Uber's 14:30:31

1 legal team. 14:30:32

2 Q. Right. So I realize that. 14:30:33

3 So what you're talking about here is your 14:30:35

4 recommendation that you should pivot, to Anthony; 14:30:39

5 right? 14:30:39

6 A. Yes. 14:30:39

7 Q. So I want to refer to the decision as a whole 14:30:42

8 to pivot to Fuji. 14:30:43

9 Are you with me? 14:30:45

10 A. I am with you. 14:30:45

11 Q. In terms of Uber's decision to pivot from 14:30:48

12 Spider to Fuji, do you have any basis to say it was 14:30:53

13 not done at the instructions of Uber's legal team or 14:30:57

14 due to any legal issues? 14:31:00

15 MR. KIM: Objection; form. 14:31:00

16 THE WITNESS: I've got a really hard time granting 14:31:04

17 that. Because if we had already made the 14:31:06

18 recommendation, how can I attribute that decision to a 14:31:10

19 legal team other than to simply allow it? I have a 14:31:16

20 really hard time granting you that statement. 14:31:18

21 BY MR. JAFFE: 14:31:18

22 Q. You have no basis to testify whether there 14:31:22

23 was any legal involvement with Anthony and his 14:31:26

24 decision to agree with your recommendation? 14:31:28

25 MR. KIM: Objection; form. 14:31:30

1 THE WITNESS: I agree with you. 14:31:31

2 BY MR. JAFFE: 14:31:31

3 Q. So in terms of the overall pivot, you, 14:31:34

4 sitting here today, can't say that there were no legal 14:31:38

5 issues or legal involvement in that overall decision? 14:31:42

6 MR. KIM: Objection; form. 14:31:44

7 THE WITNESS: I'll agree with that. 14:31:46

8 BY MR. JAFFE: 14:31:46

9 Q. Okay. Let's go to paragraph 11. And on 14:32:05

10 page 7, you say, "The transmit lens has a focal length 14:32:14

11 of 150 millimeters." 14:32:17

12 A. Yes. 14:32:18

13 Q. Which cavity are you referring to here? 14:32:22

14 A. This would be true of either cavity. 14:32:25

15 Q. And when you say "focal length," what do you 14:32:29

16 mean by that? 14:32:30

17 A. I mean if you were to take a set of parallel 14:32:37

18 rays of light coming towards the outside surface of 14:32:42

19 the lens, those parallel rays would converge -- 14:32:46

20 assuming that they're on the parallel to the axis of 14:32:50

21 the lens, would converge at a point on the central 14:32:55

22 axis of the lens that is 150 millimeters from some 14:33:02

23 point within the lens. And this is the focal length 14:33:08

24 specified in the Zemax software that Gaetan designed. 14:33:13

25 Q. Would you agree that within any one cavity, 14:33:16

1 the diode angles' and spacings are slightly different? 14:33:23

2 MR. KIM: Objection; form. 14:33:25

3 THE WITNESS: Yeah, I'm not sure what -- if you 14:33:28

4 could be more specific. I mean, clearly we've shown 14:33:31

5 changes in the intended angles, so there are some with 14:33:35

6 differences, and now we're talking slight. 14:33:38

7 BY MR. JAFFE: 14:33:38

8 Q. So that's fine. 14:33:40

9 Do you know what the virtual intersection 14:33:43

10 point is? 14:33:45

11 MR. KIM: Objection; form. 14:33:46

12 THE WITNESS: I'm not sure what that refers to. 14:33:49

13 BY MR. JAFFE: 14:33:49

14 Q. So you don't know what that is? Let me 14:33:51

15 actually ask that a different way. Is that all right? 14:33:54

16 A. Go ahead. 14:33:55

17 Q. Have you ever heard the term "virtual 14:33:56

18 intersection point" before? 14:33:59

19 A. I'm not aware of that as a classical or 14:34:04

20 standard lens terminology. But it does ring a bell 14:34:08

21 with the declaration by Greg Kintz. 14:34:12

22 Q. Outside of Mr. Kintz's declaration, are you 14:34:16

23 familiar with the term "virtual intersection point"? 14:34:19

24 A. Not as it would necessarily apply as a 14:34:22

25 standard term, no. 14:34:23

Page 137

1 MR. JAFFE: Which number are we at? 14:34:23
2 THE REPORTER: I think we're on 156.
3 MR. KIM: How long have you gone on the record? 14:35:02
4 THE REPORTER: We're on 157.
5 THE VIDEOGRAPHER: Three hours and four minutes.
6 MR. KIM: We've got another hour. If there's a
7 convenient time for a break.
8 MR. JAFFE: I'll do this -- 14:35:04
9 MR. KIM: You can ask your next --
10 MR. JAFFE: -- really quick and then we can take a 14:35:07
11 quick break. 14:35:08
12 (Plaintiff's Exhibit 157 was marked.) 14:35:23
13 BY MR. JAFFE:
14 Q. I've marked as Exhibit 157 a document with 14:35:26
15 the slip sheet labeled "Exhibit H." And then the 14:35:30
16 document underlying that says, [REDACTED] 14:35:33
17 Is this a document that you were referring to 14:35:36
18 before that Mr. Levandowski, Anthony Levandowski that 14:35:40
19 is, called you about and discussed? 14:35:41
20 MR. KIM: Objection; form. 14:35:52
21 THE WITNESS: No, this is not, to my recollection, 14:35:56
22 the same document. There does appear to be some 14:36:00
23 features in here, but for reasons I don't understand, 14:36:03
24 there seems to be pages I'm not familiar with. 14:36:07
25 BY MR. JAFFE: 14:36:07

Page 138

1 Q. So you're familiar with some pages of this 14:36:15
2 document, but not others; is that fair? 14:36:18
3 A. I think so, yeah. 14:36:19
4 Q. Let's go to page 10. 14:36:20
5 A. Okay. 14:36:22
6 Q. And, actually, before we get there, going 14:36:30
7 back to the first page, it's dated May 16th, 2016. 14:36:33
8 You worked at Otto at that time; right? 14:36:36
9 A. I believe I did, yes. 14:36:38
10 Q. And you had had conversations with 14:36:39
11 Mr. Boehmke by that time? 14:36:41
12 A. Probably not. 14:36:43
13 Q. Okay. But were you aware of Uber and Otto 14:36:46
14 having conversations at that time? 14:36:50
15 A. I don't think so. 14:36:51
16 Q. So you weren't aware of the conversations, to 14:36:55
17 the extent that they were happening, between Uber and 14:36:58
18 Otto? 14:36:59
19 A. I don't recall if I had become aware of Uber 14:37:04
20 and Otto discussions at this early date in May. 14:37:07
21 Q. So if you look at page 14. 14:37:28
22 A. Okay. 14:37:34
23 Q. You see it says, [REDACTED] 14:37:35
24 A. Yes. 14:37:36
25 Q. Does this refresh your recollection that Uber 14:37:39

Page 139

1 and Otto were already talking at this time? 14:37:43

2 A. Yes. Then this would be indicative of their 14:37:48

3 discussion. 14:37:48

4 Q. Okay. So going back to page 10. 14:37:53

5 A. Yes. 14:37:54

6 Q. Do you see there's a section entitled, [REDACTED] [REDACTED]

7 [REDACTED] 14:38:04

8 A. Yes. 14:38:06

9 [REDACTED] [REDACTED] 14:38:09

10 A. No, I'm not familiar with this page. 14:38:11

11 Q. So you're -- well, you said you're not 14:38:15

12 familiar with this page. I'm referring -- 14:38:16

13 Are you familiar with [REDACTED] [REDACTED]

14 [REDACTED] 14:38:22

15 A. So I was not aware of this design, especially 14:38:41

16 with this date. No, I'm not familiar with this 14:38:45

17 design, actually. 14:38:46

18 Q. Do you know what the [REDACTED] referred to 14:38:48

19 here refers to? 14:38:49

20 A. To my knowledge, the term [REDACTED] has 14:38:55

21 been applied to be synonymous, more or less, with an 14:38:59

22 optical cavity. 14:39:00

23 Q. Do you know whether Mr. Levandowski had any 14:39:06

24 input into this [REDACTED] 14:39:09

25 A. I don't know. 14:39:09

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. In this concept here, you would agree that 14:39:18
2 the PCBs are arranged along a straight-edge board? 14:39:25
3 MR. KIM: Objection; form. 14:39:26
4 THE WITNESS: No, that's -- this appears to be a 14:39:29
5 schematic, and it doesn't tell me anything about the 14:39:32
6 plan view of the board. 14:39:34
7 BY MR. JAFFE: 14:39:34
8 Q. Would you agree that the -- what apparently 14:39:41
9 are the emitters are [REDACTED]? 14:39:44
10 MR. KIM: Objection; form. 14:39:48
11 THE WITNESS: Let me see. 14:39:49
12 (Witness reviews document.)
13 THE WITNESS: It's not clear if they are [REDACTED] [REDACTED]
[REDACTED] They look [REDACTED] from what's 14:39:59
15 clearly a simple type of PowerPoint graphic, but it's 14:40:06
16 not clear if they say one degree native if they could 14:40:10
17 actually achieve [REDACTED]
[REDACTED] 14:40:17
19 BY MR. JAFFE:
20 Q. The last bullet says, [REDACTED] [REDACTED]
21 [REDACTED] [REDACTED] " 14:40:23
22 Do you see that? 14:40:24
23 A. I see that. 14:40:24
24 Q. What does [REDACTED] refer to there? 14:40:27
25 MR. KIM: Objection; form. 14:40:28

Page 141

1 THE WITNESS: I can't be sure what was meant 14:40:31
2 exactly; but given what I know, I would assume this 14:40:35
3 has to do with effective [REDACTED] 14:40:40
4 BY MR. JAFFE: 14:40:40
5 Q. We're talking about the Y delta again? 14:40:43
6 MR. KIM: Objection; form. 14:40:43
7 THE WITNESS: Not necessarily. 14:40:45
8 BY MR. JAFFE: 14:40:45
9 Q. You said, "Not necessarily." 14:40:47
10 What do you mean by that? 14:40:48
11 A. My guess would have been angular spacing. 14:40:52
12 Q. In the top part of this page, it talks about 14:41:06
13 [REDACTED] [REDACTED] [REDACTED]
14 [REDACTED] 14:41:12
15 A. I see that. 14:41:14
16 Q. That's the [REDACTED] right? 14:41:17
17 A. Yes. 14:41:19
18 Q. [REDACTED] 14:41:24
19 this is different than the Fuji design; right? 14:41:27
20 MR. KIM: Objection; form. 14:41:32
21 THE WITNESS: There's not a lot of detail in here; 14:41:35
22 but it's not the Fuji design yet, that's for sure. 14:41:39
23 BY MR. JAFFE: 14:41:39
24 Q. And you helped start the Fuji project, and 14:41:41
25 you're not familiar with this Plan B at all; right? 14:41:44

1	A. Right.	14:41:44
2	Q. So to your knowledge, what's described here	14:41:48
3	as Plan B isn't the basis for the Fuji design?	14:41:52
4	MR. KIM: Objection; form.	14:41:55
5	THE WITNESS: I am not aware of a link between	14:41:59
6	this Plan B in this document and the Fuji design.	14:42:04
7	BY MR. JAFFE:	14:42:04
8	Q. And you would be in a position to know;	14:42:08
9	right?	14:42:09
10	MR. KIM: Objection; form.	14:42:11
11	THE WITNESS: I would have to make that	14:42:13
12	presumption. And it's just a presumption.	14:42:15
13	BY MR. JAFFE:	14:42:15
14	Q. In your job, you would be in a position to	14:42:18
15	know that; right?	14:42:18
16	MR. KIM: Objection; form.	14:42:25
17	THE WITNESS: I would expect to know that.	14:42:26
18	MR. JAFFE: Let's take a break.	14:42:32
19	THE VIDEOGRAPHER: We are off the record at 2:42	14:42:36
20	p.m.	14:42:36
21	(Recess taken.)	14:42:36
22	THE VIDEOGRAPHER: We are back on the record at	14:55:55
23	2:56 p.m.	14:55:57
24	BY MR. JAFFE:	14:55:57
25	Q. Have you discussed the subject matter of your	14:56:03

1 testimony during any of the breaks today? 14:56:05

2 A. Nothing in terms of like what we said in this 14:56:10

3 testimony. 14:56:11

4 Q. What does that mean? 14:56:13

5 A. That means the legal team may have advised me 14:56:19

6 on procedural matters, general terms without 14:56:23

7 referencing the actual content of our discussion. 14:56:26

8 Q. What did they tell you? 14:56:27

9 MR. KIM: Objection. 14:56:27

10 Going to instruct you not to answer on the 14:56:31

11 grounds of attorney-client privilege. 14:56:33

12 BY MR. JAFFE: 14:56:33

13 Q. Did your legal team tell you how to testify 14:56:36

14 after these meetings? 14:56:37

15 MR. KIM: You can answer that yes or no. 14:56:39

16 THE WITNESS: Could you be clear by what you mean 14:56:41

17 by "how to testify"? 14:56:42

18 BY MR. JAFFE:

19 Q. I don't think I can be any clearer. 14:56:46

20 A. Like what to say? 14:56:47

21 Q. I'm trying to understand what the legal team 14:56:51

22 told you in terms of general terms, procedural 14:56:55

23 matters, which is what you said. 14:56:57

24 What did they tell you? 14:56:58

25 MR. KIM: Instruct you not to reveal any 14:57:00

1 privileged conversations. 14:57:11

2 THE WITNESS: Are you instructing me not to 14:57:13

3 answer? 14:57:14

4 MR. KIM: You can answer his prior question yes or 14:57:17

5 no. 14:57:17

6 THE WITNESS: If your question is, did they tell 14:57:24

7 me what to say, no. Did they tell me how to testify, 14:57:28

8 no. 14:57:29

9 BY MR. JAFFE: 14:57:29

10 Q. When you said that they told you things about 14:57:31

11 general things and procedural considerations, what 14:57:34

12 general things did they tell you? 14:57:37

13 MR. KIM: I'm going to instruct you not to answer 14:57:39

14 on the grounds of attorney-client privilege. 14:57:40

15 BY MR. JAFFE: 14:57:40

16 Q. What procedural -- what general terms about 14:57:42

17 your testimony did they tell you? 14:57:45

18 A. Let's see. We discussed how much time is 14:57:52

19 left, something called redirect. 14:57:59

20 Q. What did they talk to you about redirect? 14:58:01

21 MR. KIM: And I'm going to instruct you not to 14:58:05

22 reveal any attorney-client privileged conversations. 14:58:09

23 And I don't think you can answer that without doing 14:58:11

24 so. I'm going to instruct you not to answer. 14:58:14

25 BY MR. JAFFE: 14:58:14

Page 145

1 Q. You talked about redirect on a break? Yes or 14:58:21
2 no? 14:58:21
3 A. Yes, we talked about the term "redirect." 14:58:24
4 Q. And what did you talk about redirect? 14:58:28
5 A. That is a situation where, instead of you, 14:58:33
6 the lawyer on my side of the table is going to ask me 14:58:36
7 questions. 14:58:36
8 Q. And how did redirect come up in the context 14:58:39
9 of your conversation? 14:58:40
10 A. In the context of time remaining and that 14:58:45
11 redirect would occur after your allotted time has 14:58:49
12 ended, so it's going to take longer than I might 14:58:54
13 think. 14:58:54
14 Q. Did Uber's lawyers tell you that they were 14:58:58
15 going to do redirect questions? 14:59:00
16 A. Yes. 14:59:02
17 Q. And did they tell you what those questions 14:59:04
18 were going to be about? 14:59:06
19 A. No. 14:59:07
20 Q. Did you talk at all about what sort of 14:59:11
21 redirect would happen? 14:59:13
22 A. No. 14:59:16
23 Q. What did you talk about about redirect? 14:59:19
24 A. That they will ask me questions just like you 14:59:24
25 ask me questions and that it's going to take longer 14:59:27

1 than the hour, approximately, that we have remaining, 14:59:30
2 so not to expect it to be over at that time. 14:59:34
3 Q. What else, in general terms, did you and your 14:59:36
4 lawyers talk about on the breaks? 14:59:38
5 MR. KIM: I'm going to advise you not to reveal 14:59:46
6 any attorney-client privileged communications. 14:59:49
7 THE WITNESS: So I'm not a lawyer. I don't know 14:59:55
8 what is considered attorney-client privilege and what 14:59:58
9 wouldn't be in that context of conversations, so I 15:00:01
10 need to be careful not to answer and disclose 15:00:03
11 something I'm not supposed to say. 15:00:06
12 MR. KIM: Do you need to consult with me about a 15:00:09
13 privilege issue? 15:00:09
14 THE WITNESS: Yes, that would help. 15:00:12
15 MR. KIM: Can we go off the record so he can 15:00:15
16 consult with me on a privilege issue before he answers 15:00:18
17 any further questions about what we discussed? 15:00:20
18 MR. JAFFE: I'll withdraw the question and I'll 15:00:22
19 ask a different question. 15:00:23
20 BY MR. JAFFE: 15:00:23
21 Q. Tell me the substance of your private 15:00:26
22 conferences -- private conferences during the break 15:00:28
23 that you had with Uber's lawyers, all of it. 15:00:32
24 MR. KIM: I'm going to object on the grounds of 15:00:36
25 privilege. 15:00:37

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. JAFFE: Are you instructing him not to answer? 15:00:41

2 MR. KIM: Instruct him not to answer. 15:00:42

3 MR. JAFFE: Okay. I think you know that's 15:00:47

4 directly contrary to Judge Alsup's order. 15:00:50

5 MR. KIM: Can you clarify that. 15:00:53

6 MR. JAFFE: Judge Alsup's order says no private 15:00:56

7 conferences after testimony begins. 15:00:58

8 MR. KIM: He's testified that we haven't had any 15:01:01

9 private conferences about his testimony. 15:01:03

10 MR. JAFFE: The record speaks for itself. You 15:01:06

11 instructed him not to answer. I'm going to move on. 15:01:09

12 This is going to be Exhibit 158. It's a 15:01:15

13 document entitled UBER00012240. 15:01:19

14 (Plaintiff's Exhibit 158 was marked.) 15:01:37

15 BY MR. JAFFE: 15:01:37

16 Q. This is an e-mail from earlier in March of 15:01:40

17 this year; right -- excuse me, April. 15:01:47

18 A. Thank you. Yes. 15:01:48

19 Q. And on this e-mail is yourself, Anthony 15:01:53

20 Levandowski, Claire Delaunay and Eric Meyhofer; right? 15:01:57

21 A. Yes. 15:01:59

22 Q. What is Claire Delaunay's role at Uber? 15:02:06

23 A. She's a software engineer or software 15:02:08

24 engineering manager. 15:02:10

25 Q. And there's -- on the "To" line, it says, 15:02:13

Page 148

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 [REDACTED] 15:02:15

2 Do you see that? 15:02:17

3 A. I see that. 15:02:19

4 Q. Why does it say [REDACTED] t ere? 15:02:23

5 A. I don't know. 15:02:23

6 Q. And you said, [REDACTED] -- so referrin to the 15:02:28

7 substance of the e-mail that you wrote, you said, 15:02:30

8 [REDACTED] 15:02:32

9 What are you referring to? 15:02:33

10 A. I referred to this web link. I can't 15:02:42

11 remember right now what I was looking at. [REDACTED] [REDACTED]

12 [REDACTED] 15:02:54

13 This could be a LiDAR sensor, but clicking on 15:02:59

14 the web link would make it very clear what this was. 15:03:03

15 Q. [REDACTED] that's Anthony Levandowski's 15:03:20

16 address; right? 15:03:20

17 A. I believe it is, yes. 15:03:20

18 Q. So someone had in their address book Anthony 15:03:25

19 Levandowski's e-mail address, but the name was just 15:03:29

20 [REDACTED] 15:03:31

21 A. Apparently. 15:03:31

22 Q. Did you notice that when you received this 15:03:36

23 e-mail? 15:03:36

24 A. No, I did not. 15:03:38

25 Q. Are you aware of whether Mr. Levandowski 15:03:40

1 consulted for Uber? 15:03:45

2 A. No. Consulted, no. 15:03:48

3 Q. Okay. You can put that aside. 15:04:04

4 This has been previously marked as Exhibit 15:04:18

5 60. So if you can go to 85 -- oh, this is the wrong 15:04:37

6 doc. 15:04:37

7 Going back in time, there's an e-mail from -- 15:04:52

8 Scott Boehmke wrote, [REDACTED] [REDACTED]

9 [REDACTED] 15:05:00

10 Do you see that? It's on the last page. 15:05:03

11 (Witness reviews document.) 15:05:14

12 A. Okay. I see that. 15:05:16

13 Q. Do you know what the "doc" being referred to 15:05:19

14 here is? 15:05:20

15 MR. KIM: Objection; form. 15:05:26

16 THE WITNESS: No. I don't know what the doc was. 15:05:35

17 BY MR. JAFFE: 15:05:35

18 Q. And then in the next e-mail in time, you were 15:05:47

19 added to the thread. 15:05:54

20 Do you see that? 15:05:55

21 A. Yes. 15:05:58

22 Q. Do you remember being added to this e-mail 15:06:01

23 thread? 15:06:02

24 A. Remember? This dates back pretty far. I 15:06:09

25 don't remember. About a year ago. 15:06:11

Page 150

1 Q. But at this time, immediately when you were 15:06:20
2 involved, Mr. Boehmke and Mr. Levandowski were having 15:06:26
3 LiDAR-related discussions; right? 15:06:31
4 MR. KIM: Objection; form. 15:06:38
5 THE WITNESS: It's not -- it's not clear, when it 15:06:40
6 says, [REDACTED] [REDACTED]
7 [REDACTED] meant Scott and Anthony or Scott and s mebody 15:06:49
8 else, so I don't know. 15:06:50
9 BY MR. JAFFE: 15:06:50
10 Q. Do you think that's ambiguous? 15:06:52
11 A. I think that's ambiguous. 15:06:54
12 MR. JAFFE: You can set that aside. 15:07:11
13 We're on 158? 15:07:13
14 THE REPORTER: 159. 15:07:15
15 MR. JAFFE: Get it right one of these times. 15:07:18
16 (Plaintiff's Exhibit 159 was marked.) 15:07:35
17 BY MR. JAFFE: 15:07:35
18 Q. In June of 2016, you were working at Otto; 15:07:39
19 right? 15:07:39
20 A. Yes. 15:07:41
21 Q. And do you see, in the second e-mail, there's 15:07:43
22 [REDACTED] [sic]? 15:07:47
23 Do you see that? 15:07:50
24 A. Yes. 15:07:50
25 Q. What is that e-mail list? 15:07:54

Page 152

1	list or not?	15:08:57
2	A. I don't recall if he was on the list or not.	15:09:00
3	Q. Okay. So sitting here today, you have no	15:09:02
4	personal knowledge whether Mr. Levandowski was on the	15:09:04
5	laser-dev e-mail list; right?	15:09:07
6	A. Sitting here right now, I don't remember if	15:09:10
7	he was on the list.	15:09:11
8	Q. Who else was on that list at this time that	15:09:14
9	you remember?	15:09:15
10	A. I would assume it was the other people	15:09:19
11	developing the LiDAR sensors.	15:09:21
12	Q. And who are those people?	15:09:23
13	A. It would be -- to my expectation, people like	15:09:28
14	Gaetan, Dan Gruver, Daniel Ratner. I don't know if	15:09:38
15	Radu was part of the company at the time. Mike	15:09:55
16	Karasoff. Probably Matt Palomar, Benjamin Becker.	15:10:00
17	That's all I can remember right now. Certainly also	15:10:22
18	could have involved Anthony Levandowski for	15:10:25
19	informative purposes.	15:10:27
20	Q. What about Max?	15:10:28
21	A. I'm sorry. Of course, Max Levandowski as	15:10:30
22	well. Who else am I forgetting? Refer back to my	15:10:41
23	list.	15:10:42
24	Q. For the record, you're looking at Exhibit	15:10:45
25	153; right?	15:10:46

Page 154

1 on that design in June of 2016? 15:12:38

2 A. I'm sorry. You said Gaetan was working with 15:12:41

3 Boehmke? 15:12:41

4 Q. Mr. Levandowski was working with Mr. Boehmke 15:12:43

5 on that design in June of 2016; right? 15:12:46

6 A. It appears that Anthony Levandowski was 15:12:52

7 informing Scott, but to say that Anthony was working 15:12:55

8 on the design, is that an overstatement? 15:12:58

9 Q. I'm saying Mr. Levandowski and Mr. Boehmke 15:13:00

10 were working together on the [REDACTED] 15:13:04

11 in June 2016? 15:13:06

12 MR. KIM: Objection; form. 15:13:07

13 THE WITNESS: I don't know that. And I wouldn't 15:13:08

14 assume that from this e-mail. As a matter of fact, 15:13:11

15 they had to be notified -- and Boehmke had to be 15:13:13

16 notified of this design, so it seems like "working on" 15:13:19

17 it would be a strong statement even for Scott at this 15:13:23

18 point. 15:13:24

19 BY MR. JAFFE: 15:13:24

20 Q. Why would Mr. Levandowski forward this e-mail 15:13:27

21 to Mr. Boehmke about [REDACTED] that 15:13:33

22 Otto was working on? 15:13:36

23 MR. KIM: Objection; form. 15:13:37

24 THE WITNESS: I'd have to -- I don't know. I 15:13:37

25 would have to guess. 15:13:38

1 BY MR. JAFFE: 15:13:38

2 Q. The only person that would know would be 15:13:40

3 Anthony; right? 15:13:40

4 A. Anthony and/or Scott. 15:13:42

5 Q. But the only person who would know why 15:13:45

6 Anthony was sending this e-mail would be Anthony; 15:13:49

7 right? 15:13:49

8 A. Probably. 15:13:50

9 Q. And do you know why Mr. Levandowski was 15:13:53

10 sending e-mails to Mr. Boehmke about [REDACTED] [REDACTED]

11 [REDACTED] in June of 2016? 15:14:01

12 A. No. 15:14:02

13 Q. Is it fair to say that Anthony Levandowski 15:14:10

14 was working with Uber on a diode-based design in June 15:14:15

15 of 2016 or no? 15:14:17

16 A. I couldn't jump to that conclusion. 15:14:22

17 Q. This e-mail would tend to indicate that he 15:14:25

18 was, though; right? 15:14:26

19 MR. KIM: Objection; form. 15:14:27

20 THE WITNESS: I don't read it that way. 15:14:29

21 BY MR. JAFFE: 15:14:29

22 Q. How do you read it? 15:14:31

23 A. I read it as Anthony informing somebody at 15:14:35

24 Uber about work that was going on at Otto. 15:14:39

25 Q. And why would Anthony be doing that? 15:14:44

3	Q. Does it surprise you that he would be	15:14:51
4	forwarding information about Otto's own designs to	15:14:54
5	Uber in June of 2016?	15:14:57

9 Q. So you don't know why Anthony is telling Uber 15:15:17
10 in June of 2016 about the confidential designs for a 15:15:23
11 diode-based device; right? 15:15:25

13 MR. JAFFE: I think this was marked before, but my 15:15:46
14 version is not marked, so I'm just going to mark it 15:15:49
15 again. 15:15:50

17 (Plaintiff's Exhibit 160 was marked.) 15:16:15

19 Q. This is an e-mail dated June 16th, 2016. And 15:16:24
20 if we go back in time, the first e-mail is from 15:16:30
21 Mr. Levandowski to Scott Boehmke. 15:16:33

23	A. Um-hum.	15:16:40
----	------------	----------

25 [REDACTED] 15:16:46

1 [REDACTED] 15:16:47

2 Do you see that? 15:16:48

3 A. Yes. 15:16:48

4 Q. Why did Mr. Levandowski send this e-mail to 15:16:51

5 Uber at this time? 15:16:53

6 MR. KIM: Objection; form. 15:16:57

7 THE WITNESS: I would have to assume Anthony was 15:17:02

8 asking Scott to prescribe angles for the LiDAR sensor 15:17:09

9 Otto was developing. 15:17:10

10 BY MR. JAFFE:

11 Q. Are these the angles that Scott -- are those 15:17:13

12 the angles that went into Fuji? 15:17:16

13 A. I don't think so. No. 15:17:22

14 Q. Are -- these angles that Mr. Boehmke wrote 15:17:25

15 back, are they related at all in the angles that ended 15:17:30

16 up in Fuji? 15:17:31

17 MR. KIM: Objection; form. 15:17:55

18 (Witness reviews document.) 15:17:55

19 THE WITNESS: Are you asking if these are related 15:18:02

20 in any way to the angles in Fuji? They may have 15:18:06

21 similar origins, similar calculations behind them, 15:18:12

22 similar driving information behind them as what we 15:18:17

23 ended up with Fuji. 15:18:19

24 BY MR. JORDAN:

25 Q. What do you mean by "driving information"? 15:18:21

1 A. Let's say, for example, there's a piece of 15:18:27
2 driving information -- there could be a desire to have 15:18:33
3 a first lowest laser beam angle come down from a 15:18:38
4 sensor that's mounted on a roof of a car and just miss 15:18:41
5 the hood of the car so that you can see the ground 15:18:45
6 directly in front of the vehicle. That sort of 15:18:48
7 information could be used over and over to derive 15:18:51
8 required angles like this. 15:18:54

9 Q. So other than those kind of basic underlying 15:18:56
10 requirements, is there any other relationship between 15:19:00
11 what Mr. Levandowski asks for and what's in the Fuji? 15:19:06

12 MR. KIM: Objection; form. 15:19:11

13 THE WITNESS: Well, what's sticking out to me is 15:19:14
14 not a similarity, but a difference. I see angles that 15:19:17
15 have been constrained into groupings of flashlights or 15:19:24
16 optical cavities with specific sets of spacing. We 15:19:29
17 don't have that restriction on the Fuji, so it seems 15:19:35
18 they should be different. 15:19:37

19 Now, are there other calculations that Scott 15:19:40
20 did to determine these angles that could be applied 15:19:44
21 first to something like this and later on still 15:19:48
22 applied to something in Fuji? It's possible. But, 15:19:52
23 again, it seems challenging given these extra 15:19:57
24 constraints, like, for example, only two different 15:20:02
25 spacings for your flashlight (indicating). 15:20:08

1 So here in Section A, you want the beams to 15:20:17
2 point at -- under two scenarios. A, you have 64 beams 15:20:22
3 and you can place them individually. That's 15:20:25
4 unconstrained. And so here's an early recomm- -- 15:20:40
5 recommended set of angles, paragraph labeled "A" on 15:20:49
6 the final e-mail. 15:20:50
7 BY MR. JAFFE: 15:20:50
8 Q. Did the angles here in Exhibit 160 form the 15:20:54
9 basis for the beam spacing in the Fuji design? 15:20:57
10 MR. KIM: Objection; form. 15:21:01
11 THE WITNESS: Not that I'm aware of. These angles 15:21:05
12 look different. 15:21:06
13 BY MR. JAFFE: 15:21:06
14 Q. And what's described here in 160, these are 15:21:10
15 actually groups of uniform spacing; right? 15:21:15
16 MR. KIM: Objection; form. 15:21:16
17 THE WITNESS: No. You have sections where they're 15:21:20
18 not uniformly spaced. 15:21:22
19 BY MR. JAFFE: 15:21:22
20 Q. So here we've got Mr. Boehmke, who comes up 15:21:31
21 with different zones of spacing; is that fair? 15:21:39
22 MR. KIM: Objection; form. 15:21:44
23 THE WITNESS: I'd use the term "groupings," but 15:21:48
24 "zones" might be effective. It just depends what the 15:21:52
25 final pointing angle of the whole sensor is. But -- 15:21:55

Page 160

1 THE REPORTER: "Sounds are fine"?

2 THE WITNESS: "Zones" are fine, as a term. 15:22:04

3 BY MR. JAFFE: 15:22:04

4 Q. And this is even for Section A of his e-mail 15:22:08

5 where there's no restrictions on beam groupings; 15:22:11

6 right? He's still proposing different zones of beam 15:22:16

7 spacings; right? 15:22:17

8 MR. KIM: Objection; form. 15:22:19

9 THE WITNESS: He's not specifically calling out 15:22:21

10 the zones. There are certain areas that seem to 15:22:25

11 have -- be uniform spacing and other zones that have, 15:22:28

12 to use your term "zones," another area or set of 15:22:32

13 angles that have a different spacing for some number 15:22:35

14 of channels. 15:22:38

15 BY MR. JAFFE:

16 Q. So this isn't where the vertical spacing for 15:22:42

17 the Fuji board came from. 15:22:44

18 So where did the vertical spacing design in 15:22:49

19 Fuji come from? 15:22:51

20 MR. KIM: Objection; form. 15:22:54

21 THE WITNESS: In our discussions so far, we've 15:22:57

22 used the term "vertical spacing" with two different 15:23:00

23 meanings. So I want to be clear to understand whether 15:23:02

24 you mean the linear vertical spacing between, say, 15:23:07

25 diodes on a board or if you mean vertical spacing as 15:23:11

Page 161

Page 162

1 Where did the idea to do [REDACTED]
[REDACTED] come from in the Fuji mid-range 15:24:56
3 transmit board design? 15:24:58
4 MR. KIM: Objection; form. 15:25:03
5 THE WITNESS: I think it's a mischaracterization 15:25:04
6 to call it -- the [REDACTED] as something that 15:25:08
7 had an idea -- that had an origin as an idea. The 15:25:12
8 fact that [REDACTED]
[REDACTED] is a side effect of the optics 15:25:21
10 in the optical cavity. 15:25:24
11 BY MR. JAFFE: 15:25:24
12 Q. So you can't tell me where it came from, who 15:25:26
13 came up with the idea? 15:25:28
14 A. I'm trying to explain -- I don't think 15:25:31
15 anybody had this idea to [REDACTED]
[REDACTED] on the laser board. 15:25:40
17 I believe that was a side effect that was unavoidable 15:25:46
18 when you take a set of vertical angles, especially if 15:25:51
19 they're nearly or equivalently spaced in terms of 15:25:56
20 angle, and project those onto a curved focal surface. 15:26:01
21 Q. You said it's unavoidable. 15:26:03
22 You worked at Velodyne; right? 15:26:05
23 A. Yes. 15:26:05
24 Q. You didn't do [REDACTED] at 15:26:09
25 Velodyne; right? 15:26:11

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. KIM: Objection; form. 15:26:12

2 BY MR. JAFFE: 15:26:12

3 Q. In terms of the X and Y positions of the 15:26:15

4 diodes? 15:26:15

5 A. I'm not aware that they were [REDACTED]

[REDACTED] as a matter of fact. 15:26:20

7 Q. You don't know? 15:26:22

8 A. I -- actually, if I had to guess, because it 15:26:25

9 was never something we directly measured or 15:26:27

10 considered, they probably are [REDACTED] 15:26:31

11 Q. And why do you say that? 15:26:34

12 A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 15:27:00

18 Q. What do you mean, it's [REDACTED]? 15:27:02

19 A. I would have to do the math or do a CAD 15:27:08

20 simulation, but I fully expect [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 15:27:24

24 Q. Okay. You worked at Velodyne; right? 15:27:28

25 A. Yes. 15:27:28

Page 164

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. And you worked on LiDAR at Velodyne? 15:27:32

2 A. Yes. 15:27:32

3 [REDACTED] 15:27:35

4 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 15:27:57

12 Q. So I want to again go back to this idea of 15:28:20

13 where did the idea to do the [REDACTED] design 15:28:23

14 in Fuji come from? You've said -- you've mentioned 15:28:26

15 the things -- the drivers, but I haven't heard who 15:28:29

16 came up with the idea, where it came from. 15:28:32

17 A. Again, you're referring, I believe, to a 15:28:34

18 linear vertical -- what we call delta Y; is that 15:28:37

19 correct? 15:28:38

20 Q. Yes. 15:28:39

21 A. I have to give you the same answer. It was 15:28:43

22 not a concept that drove the design. There was nobody 15:28:48

23 coming up with the idea to do that. The idea for the 15:28:54

24 vertical angles I would attribute to Scott Boehmke. 15:28:58

25 The lens design I would attribute to Gaetan Pennecot. 15:29:01

Page 165

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 So what you end up with on the board at that point is 15:29:06
2 just derived from those pieces of information. 15:29:10
3 Q. So talking about the angles, you said when 15:29:13
4 you were at Velodyne, you did constant angles. 15:29:17
5 A. Yes. 15:29:17
6 Q. Why didn't you want to get [REDACTED]
[REDACTED] when you were working at 15:29:26
8 Velodyne? 15:29:27
9 A. I don't know. 15:29:28
10 Q. You guys didn't come up with that? You 15:29:31
11 didn't think of that idea? 15:29:33
12 A. I don't think so. I mean, I would -- at that 15:29:40
13 point, [REDACTED] had a very strong influence on this 15:29:43
14 is what your LiDAR is going to be, this is the angle 15:29:46
15 spacing. So it's not something that I had ever 15:29:49
16 thought of. 15:29:50
17 Q. It not something that you guys considered, 15:29:54
18 which is you want [REDACTED] as you 15:29:59
19 go down the road? 15:30:00
20 A. [REDACTED]? 15:30:00
21 Q. Yes. 15:30:01
22 A. That was the design that Velodyne ended up 15:30:04
23 with -- 15:30:05
24 Q. Sorry. 15:30:05
25 A. -- still 32.

1 Q. Let me ask a different question. 15:30:07
2 If you wanted to have a point on the road 15:30:09
3 every 10 feet going out to 150 feet, is that an idea 15:30:13
4 that you guys came up with at Velodyne? 15:30:17
5 A. That -- I don't recall that idea at Velodyne, 15:30:20
6 no. 15:30:20
7 Q. Even though you guys were designing LiDARs 15:30:24
8 for self-driving cars? 15:30:26
9 A. We were designing LiDARs for mapping, 15:30:29
10 self-driving cars, robots. So, yes. 15:30:34
11 Q. And when you came to Otto, who came up with 15:30:40
12 the idea of wanting to get -- hit a point every 10 15:30:49
13 feet on the road for every 150 feet? Or that concept, 15:30:53
14 where did that come from? 15:30:55
15 A. The vertical angles and the concepts behind 15:31:01
16 them I believe, my understanding was, came through 15:31:04
17 Scott Boehmke. 15:31:05
18 Q. Anyone else? 15:31:06
19 A. I'm not aware of anyone else. 15:31:08
20 Q. And you know that Scott Boehmke was talking 15:31:11
21 with Anthony Levandowski about LiDAR design when you 15:31:15
22 were joining; right? 15:31:16
23 A. Shortly after I joined, we have e-mails that 15:31:18
24 show that they were talking about LiDAR, yes. 15:31:21
25 Q. And, in particular, the e-mail that we were 15:31:26

1 just looking at, for example, shows that 15:31:30
2 Mr. Levandowski and Mr. Boehmke were talking about how 15:31:35
3 to implement 64 beams and the angles for each of 15:31:39
4 those; right? 15:31:40
5 A. They were talking about that topic, yes. 15:31:45
6 Q. And they were talking about that because 15:31:47
7 Mr. Levandowski was working with Mr. Boehmke on the 15:31:50
8 beam angles; right? 15:31:52
9 A. Well, you're making it sound like Anthony was 15:31:57
10 working on the beam angles. So I want to just be 15:32:01
11 clear. I don't know that he actually worked on beam 15:32:04
12 angles, but it does seem that he was asking Scott 15:32:07
13 Boehmke to design angles based on certain 15:32:10
14 manufacturing restrictions. 15:32:12
15 Q. And where do those manufacturing restrictions 15:32:14
16 come from? 15:32:17
17 A. It could have involved a discussion with 15:32:22
18 Anthony Levandowski, but it also included Dan Gruver 15:32:27
19 and myself. Maybe Gaetan Pennecot; I'm not sure. 15:32:32
20 Q. So going back to Mr. Levandowski's e-mail. 15:32:42
21 A. Yes. 15:32:43
22 Q. Gives Option A and Option B. 15:32:48
23 A. Yes.
24 Q. Option A, [REDACTED]
25 [REDACTED] 15:32:54

1 A. Yes. 15:32:54

2 Q. What kind of LiDAR design does that refer to? 15:33:00

3 A. I'm sorry?

4 MR. KIM: Objection; form. 15:33:03

5 THE WITNESS: I don't understand what you mean, 15:33:04

6 "what kind of LiDAR." 15:33:05

7 BY MR. JAFFE: 15:33:05

8 Q. So he's describing -- tell me beam angles if 15:33:10

9 we have the follow constraints: [REDACTED] [REDACTED]

10 [REDACTED]

11 What kind of a LiDAR does that correspond to? 15:33:18

12 MR. KIM: Objection; form. 15:33:18

13 THE WITNESS: That would correspond to a LiDAR 15:33:21

14 design where the beams can be individually placed 15:33:25

15 without regard to manufacturing different optical 15:33:27

16 cavities. 15:33:29

17 BY MR. JAFFE: 15:33:29

18 Q. So does -- Point A here, is that -- is that 15:33:31

19 consistent with the Fuji design? 15:33:37

20 A. Both Point A and Fuji lack some sort of 15:33:44

21 applied restraint on the spacing. 15:33:48

22 Q. Right. 15:33:49

23 So Fuji has 64 beams; right? 15:33:50

24 A. Fuji has 64 beams. 15:33:54

25 Q. And you can place the diodes individually to 15:33:57

Page 170

1 MR. JAFFE: I think this was marked previously as 15:36:18
2 Exhibit 62. Doesn't look like it has a sticker, so if 15:36:22
3 you want to mark it again as 62, please. 15:36:25
4 THE REPORTER: You're saying 62? 15:36:25
5 MR. JAFFE: Oh, it does have an exhibit number on 15:36:34
6 it. Excuse me. 15:36:36
7 BY MR. JAFFE: 15:36:39
8 Q. We talked about this exhibit at your last 15:36:45
9 deposition. 15:36:46
10 Do you recall that? 15:36:46
11 A. I recall that. 15:36:47
12 Q. I want to talk about a different part. 15:36:49
13 Do you see, in the optical cavity -- or 15:36:51
14 excuse me. Where is this? This isn't right. 15:37:06
15 You can just put that one aside. I think 15:37:30
16 it's the wrong document. 15:37:31
17 MR. KIM: How much time have we gone on the 15:37:49
18 record? 15:37:50
19 THE VIDEOGRAPHER: Three hours and 53 minutes on 15:37:53
20 the record. 15:37:55
21 MR. KIM: Thank you. 15:37:56
22 MR. JAFFE: I think this is it. This was Exhibit 15:38:06
23 58. 15:38:07
24 BY MR. JAFFE: 15:38:07
25 Q. This is the e-mail that is attached as 15:38:29

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Exhibit A to your first declaration. And this is what 15:38:34
2 you cite in support of the idea that Uber 15:38:38
3 independently came up with the idea of [REDACTED]
[REDACTED] 15:38:44
5 Do you see that? 15:38:45
6 A. I see this exhibit. 15:38:48
7 Q. And in particular, what you say here is -- if 15:38:54
8 you look at the second -- well, it's the third page 15:38:57
9 including the slip sheet, the first e-mail. 15:39:01
10 A. Um-hum. 15:39:02
11 Q. It says, [REDACTED] 15:39:05
12 Do you see that paragraph? 15:39:07
13 A. Just a moment. 15:39:08
14 (Witness reviews document.) 15:39:08
15 A. Sorry. I'm there now. 15:39:17
16 Q. Do you see it there, [REDACTED] 15:39:21
17 A. Yes, I do. 15:39:22
18 Q. And, again, to orient us, in early 905 15:39:26
19 nanometer discussions, you're referring to Fuji; 15:39:29
20 right? 15:39:29
21 A. Yes. 15:39:29
22 [REDACTED] [REDACTED]
23 [REDACTED] [REDACTED]
24 [REDACTED] 15:39:37
25 MR. KIM: Objection; form. 15:39:40

Page 172

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 THE WITNESS: [REDACTED] 15:39:43

2 [REDACTED] 15:39:46

3 [REDACTED] 15:39:47

4 BY MR. JAFFE: 15:39:47

5 [REDACTED] [REDACTED] [REDACTED] [REDACTED]

6 [REDACTED] [REDACTED] [REDACTED]

7 [REDACTED] 15:39:55

8 MR. KIM: Objection; form. 15:39:56

9 THE WITNESS: No, I'm sorry. Could you be more 15:40:04

10 specific in your question. I'm confused. 15:40:07

11 BY MR. JAFFE: 15:40:07

12 Q. Because I'm short on time, I'll just skip 15:40:10

13 that.

14 Here in this e-mail, these are early 905 15:40:13

15 nanometer discussions. 15:40:15

16 A. Yes.

17 Q. And you wrote, [REDACTED] [REDACTED]

18 [REDACTED] [REDACTED] [REDACTED]

19 [REDACTED] 15:40:23

20 Do you see that? 15:40:25

21 A. Yes. 15:40:25

22 Q. So at the time of this e-mail, October 28th, 15:40:30

23 you had the idea of [REDACTED] 15:40:35

24 A. Yes. 15:40:35

25 Q. So at this point, in October, you didn't 15:40:38

Page 173

1 actually have the idea of [REDACTED]
[REDACTED] 15:40:44
3 A. True. 15:40:45
4 Q. So this is not evidence of -- this e-mail is 15:40:50
5 not indicative of you coming up with the [REDACTED]
[REDACTED]; right? 15:41:00
7 MR. KIM: Objection; form. 15:41:01
8 THE WITNESS: This is not indicative of the -- or 15:41:04
9 this is not evidential to the [REDACTED]
[REDACTED]. 15:41:12
11 BY MR. JAFFE: 15:41:12
12 Q. And what you were thinking on October 26th 15:41:14
13 [sic] is [REDACTED]; right? 15:41:18
14 A. Yes, on October 28th. 15:41:20
15 Q. Okay.
16 MR. KIM: Jordan, are you wrapping up? 15:41:40
17 MR. JAFFE: I only have a few more minutes, so I 15:41:43
18 think I'm wrapping up. 15:41:45
19 MR. KIM: I think we've got one. 15:41:47
20 BY MR. JAFFE: 15:41:47
21 Q. What documents are you aware of that would 15:42:04
22 show Anthony -- all of Anthony Levandowski's input 15:42:08
23 into Uber and Otto's LiDAR designs? 15:42:12
24 MR. KIM: Objection; form. 15:42:14
25 THE WITNESS: I'm not aware of a list of documents 15:42:17

1 or a source for documents to go to to document all of 15:42:20
2 his influence. 15:42:21
3 BY MR. JAFFE: 15:42:21
4 Q. How would you find out about how 15:42:25
5 Mr. Levandowski has influenced LiDAR design at Uber 15:42:30
6 and Otto? 15:42:31
7 MR. KIM: Objection; form. 15:42:41
8 THE WITNESS: That's difficult. 15:42:42
9 BY MR. JAFFE: 15:42:42
10 Q. Why? 15:42:44
11 A. When you're looking for all of something and 15:42:49
12 you need to miss nothing, that's not an easy problem 15:42:53
13 to solve. If you look at all the possible sources of 15:42:58
14 influence, I'm not sure they would all be documented. 15:43:01
15 Q. How would you go about trying to find out as 15:43:04
16 much as you could about how Mr. Levandowski has had 15:43:08
17 input into Uber and Otto's LiDAR designs? 15:43:13
18 MR. KIM: Objection; form. 15:43:16
19 THE WITNESS: I suppose I would talk to the 15:43:18
20 various engineers that had LiDAR responsibilities. 15:43:21
21 BY MR. JAFFE: 15:43:21
22 Q. Who? 15:43:22
23 A. Shall we pick up -- 15:43:31
24 Q. Would you talk to everyone on this list? Is 15:43:32
25 that the idea? 15:43:33

Page 176

1 documents that you would look at or data, anything? 15:44:34

2 MR. KIM: Objection; form. 15:44:35

3 THE WITNESS: I don't know. I might look for 15:44:48

4 Google docs with his authorship. 15:44:51

5 BY MR. JAFFE: 15:44:51

6 Q. Anything else? 15:44:55

7 A. No. 15:44:56

8 Q. Okay. 15:44:56

9 MR. JAFFE: Well, I think I have run out of time. 15:45:01

10 MR. KIM: Okay. 15:45:06

11 THE REPORTER: Do you want this as 161? 15:45:20

12 MR. KIM: Yes.

13 THE REPORTER: Next number? Okay.

14 MR. JAFFE: I'm going to object --

15 THE REPORTER: Hang on. Let me just write this.

16 MR. KIM: Oh. 1061.

17 THE REPORTER: 161?

18 MR. KIM: You know, I think we're alternating --

19 MR. JAFFE: We have different blocks of exhibits. 15:45:31

20 So his exhibit numbers, they start at 1000; ours start 15:45:35

21 at zero. So I don't know what number you're at. 15:45:36

22 MR. KIM: Actually, can we start at 1060. 15:45:39

23 (Defendants' Exhibit 1060 was marked.) 15:46:05

24 REDIRECT EXAMINATION

25 BY MR. KIM: 15:46:05

1 Q. Mr. -- 15:46:07

2 MR. JAFFE: I'm just going to object as improper 15:46:10

3 redirect. And, again, this is improper kind of super 15:46:15

4 surreply evidence here. 15:46:18

5 BY MR. KIM: 15:46:18

6 Q. Mr. Haslim, you were asked earlier today 15:46:20

7 about angles and delta values for Fuji. 15:46:25

8 Do you recall that? 15:46:26

9 MR. JAFFE: Objection; leading. 15:46:26

10 THE WITNESS: Yes. 15:46:30

11 BY MR. KIM: 15:46:30

12 Q. Do you recognize the angles depicted on the 15:46:34

13 left-hand column of this document? 15:46:38

14 A. Yes. 15:46:49

15 Q. And how do you recognize them? 15:46:51

16 A. These would be the pointing angles for the 15:46:58

17 laser dowels -- did I say dowels -- laser diodes on 15:47:03

18 the Transmit Board A. The angles have a -- 15:47:09

19 THE REPORTER: "Sign inversion"? 15:47:13

20 THE WITNESS: -- sign inversion applied to them. 15:47:13

21 And the angles are rounded down to two 15:47:16

22 decimal places, otherwise they appear to be the same 15:47:19

23 angles. 15:47:20

24 BY MR. KIM: 15:47:20

25 Q. And just for the record, are you comparing 15:47:23

Page 178

Page 179

1 "Delta"?

2 A. Yes. 15:48:34

3 Q. Do you know what those correspond to? 15:48:36

4 A. These are the subtractive difference between 15:48:45

5 two subsequent angles in the first list labeled 15:48:50

6 "Angles." 15:48:51

7 Q. And is there a term for that delta? Would 15:48:59

8 you just call it delta or the difference, or how would 15:49:02

9 you describe that? 15:49:03

10 A. I may have referred to this as channel 15:49:07

11 spacing. 15:49:07

12 Q. And does that reflect the channel spacing for 15:49:12

13 the Board A in the Fuji product -- or Fuji design? 15:49:19

14 A. Yes. 15:49:20

15 Q. And next to that column, do you see the 15:49:26

16 column listed under the heading "Distance between 15:49:28

17 diodes in millimeters"? 15:49:30

18 A. Yes. 15:49:31

19 Q. Do you know what's reflected in that column? 15:49:35

20 A. I believe I do. I can use the calculator to 15:49:39

21 double check one or two of your numbers. Oh, boy. 15:49:59

22 (Pause in proceedings.) 15:49:59

23 (Witness performs calculation.)

24 A. Okay. This calculator does not do squares 15:50:22

25 apparently. Apologies. Okay. It appears that you're 15:51:37

1 taking -- and we can do this for more angles if you 15:51:42
2 wish, but it looks like the diodes -- the distance 15:51:43
3 between diodes in millimeters is the straight line 15:51:48
4 distance between adjacent laser diodes on the Board A. 15:51:56
5 Q. Could you describe generally how you 15:51:59
6 calculated that or determined that? 15:52:01
7 A. Yeah. So [REDACTED] 15:52:05
8 [REDACTED] 15:52:10
9 [REDACTED] 15:52:16
10 [REDACTED] 15:52:22
11 [REDACTED] 15:52:25
12 I don't know if you need any more -- 15:52:29
13 Q. Is there a name for that equation that you 15:52:31
14 just described? 15:52:32
15 A. [REDACTED] 15:52:36
16 [REDACTED] or -- yeah. 15:52:41
17 Q. And then going back to the channel spacing 15:52:45
18 under "delta" -- 15:52:46
19 Is that the term you used? 15:52:48
20 A. Under "delta" -- channel spacing, yes. This 15:52:55
21 is an angular spacing. 15:52:57
22 Q. Does that reflect the accurate channel 15:52:59
23 spacing for the Fuji Board A? 15:53:02
24 A. These do appear to be the channel spacing. 15:53:07
25 In terms of accurate, these numbers are already 15:53:11

1 rounded down to two decimal spaces of angle, so that's 15:53:18
2 the level of accuracy.

3 Q. And do you see the numbers down in red -- 15:53:20

4 A. Yes. 15:53:22

5 Q. -- in that column? 15:53:22

6 Does that [REDACTED]? 15:53:31

7 A. Could you be more specific. 15:53:33

8 Q. Yeah. 15:53:35

9 Are any of those [REDACTED]? 15:53:38

10 A. No. 15:53:38

11 Q. They're not? 15:53:40

12 What about between [REDACTED] are those [REDACTED]

[REDACTED] 15:53:47

14 A. [REDACTED] No, [REDACTED] 15:53:49

15 Q. Are we looking at the same thing? Aren't 15:53:50

16 they 1.16 and -- 15:53:52

17 A. [REDACTED]. I'm sorry. Are you asking -- 15:53:55

18 Q. [REDACTED]

19 A. -- channel spacing or distance between --

20 Q. I'm asking channel spacing.

21 THE REPORTER: Could you repeat that.

22 THE WITNESS: I'm asking whether he was referring 15:54:04

23 to -- his question referred to the "Delta" column or 15:54:07

24 the "Distance between diodes." 15:54:09

25 BY MR. KIM:

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. I'm asking under the "Delta" column. 15:54:11

2 A. Okay. Well, no. [REDACTED]

[REDACTED] 15:54:19

4 Q. And [REDACTED]

[REDACTED] 15:54:23

6 A. Yes. 15:54:23

7 Q. In your opinion, are these [REDACTED]

[REDACTED] 15:54:34

9 A. No, not necessarily. You could argue that as 15:54:37

10 [REDACTED]

[REDACTED] 15:54:42

12 Q. And same question for the distance between 15:54:45

13 diodes reflected in -- under the column "Distance 15:54:50

14 between diodes. 15:54:53

15 A. Yes. 15:54:54

16 Q. Looking at Channels [REDACTED]

[REDACTED] 15:55:03

18 MR. JAFFE: Objection; leading. 15:55:04

19 THE WITNESS: No [REDACTED] 15:55:08

20 BY MR. KIM: 15:55:08

21 Q. Now, [REDACTED]

[REDACTED] ? 15:55:15

23 A. They [REDACTED] 15:55:20

24 Q. Do you have an understanding as to whether or 15:55:24

25 not that would still be described as [REDACTED] 15:55:27

Page 183

1 [REDACTED] 15:55:31

2 A. That -- I would still consider that 15:55:33

3 [REDACTED]. And we're referring to the 15:55:36

4 "Distance between diodes in millimeters." 15:55:39

5 Q. Okay. What about for the [REDACTED] board depicted on 15:55:45

6 this exhibit? Can you tell me if the angles listed in 15:55:52

7 Exhibit 1060 accurately reflect the angles of the [REDACTED] 15:55:58

8 board for Fuji? 15:56:00

9 (Witness reviews documents.) 15:56:17

10 A. Again, the angles you've listed under the 15:56:19

11 "Angles" column for Board [REDACTED] appear to be [REDACTED]

[REDACTED] with two 15:56:30

13 decimal place rounding. 15:56:32

14 Q. And what about the channel spacing for the [REDACTED] 15:56:36

15 board; does this Exhibit 1060 accurately depict the 15:56:42

16 channel spacing for the [REDACTED] board for Fuji? 15:56:58

17 (Witness reviews documents.) 15:56:58

18 A. Just do this. This is faster. 15:57:04

19 (Witness performs calculation.)

20 A. I've only seen .01 error so far in the delta 15:58:14

21 values. That could be a rounding error, I suppose. 15:58:17

22 Q. For which channel? 15:58:18

23 A. Delta after [REDACTED] was listed [REDACTED]

[REDACTED] 15:58:29

25 Q. But that could be due to the fact that [REDACTED] 15:58:32

1 [REDACTED] are listed in -- to two decimal places? 15:58:38

2 A. To two decimal places. So if you have -- 15:58:40

3 MR. JAFFE: Objection; leading. 15:58:42

4 THE WITNESS: Okay. If this was simply a 15:58:47

5 spreadsheet like these commonly are, it's quite 15:58:50

6 possible that the [REDACTED] is a more accurate difference 15:58:55

7 between the angles in the "Angles" column, which have 15:58:59

8 been rounded up or rounded down to two decimal places. 15:59:06

9 (Witness performs calculation.)

10 THE WITNESS: Again, it looks like --

11 THE REPORTER: I'm sorry, can you repeat.

12 THE WITNESS: Again, it looks like delta for [REDACTED] 15:59:53

13 has a [REDACTED] 15:59:56

14 BY MR. KIM:

15 Q. What do you get for [REDACTED], rounded to two 16:00:02

16 decimal places? 16:00:03

17 A. I thought I was gettin [REDACTED] So let me 16:00:07

18 double check here. 16:00:08

19 (Witness performs calculation.)

20 A. Yeah, I'm getting [REDACTED] 16:00:16

21 Delta for [REDACTED] is off by [REDACTED] degrees. 16:00:43

22 Q. What number do you get? 16:00:44

23 A. [REDACTED] 16:00:46

24 (Witness performs calculation.)

25 Q. The rest of the numbers look accurate? 16:01:00

1 A. Yeah. 16:01:00

2 MR. JAFFE: Objection; leading. 16:01:03

3 BY MR. KIM: 16:01:03

4 Q. Have you ever used the term [REDACTED] 16:01:08

5 A. I'm familiar with the term from mathematics. 16:01:13

6 Q. What does that term mean to you? 16:01:17

7 A. To me, especially in reference to a 16:01:20

8 mathematical function, the term [REDACTED] means that 16:01:25

9 [REDACTED]

[REDACTED]

[REDACTED] 16:01:53

14 Q. In your opinion, do -- the channel spacing 16:01:55

15 for Board A for Fuji, do they [REDACTED]

[REDACTED] 16:02:07

17 A. Channel spacing related to the "Delta" column 16:02:10

18 we've labeled? 16:02:11

19 Q. Yes. 16:02:12

20 A. To my understanding, that is not [REDACTED] 16:02:30

21 Q. Why is that? 16:02:31

22 A. I see numbers that start at the "Delta" 16:02:34

23 column, the channel spacing we called it, [REDACTED]

[REDACTED]

[REDACTED] 16:02:49

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 [REDACTED] 16:02:51

2 Q. Same question for the distance between 16:02:53

3 diodes. 16:02:54

4 Is that distance [REDACTED]

[REDACTED] for Fuji? 16:03:06

6 A. No. The linear distance is not [REDACTED]

[REDACTED]

[REDACTED] 16:03:26

10 Q. Is that also true for the channel spacing for 16:03:32

11 Board [REDACTED] for Fuji? 16:03:34

12 MR. JAFFE: Objection; leading. 16:03:40

13 THE WITNESS: I see the same [REDACTED]

[REDACTED]

[REDACTED] 16:04:05

18 BY MR. KIM:

19 Q. And that's for Board [REDACTED] for Fuji? 16:04:08

20 A. For Board [REDACTED] on this document, yes. 16:04:10

21 Q. What about for Board [REDACTED] are the channel 16:04:15

22 spacings [REDACTED]? 16:04:23

23 A. No. [REDACTED]

[REDACTED]

[REDACTED] 16:04:36

Page 187

1 Q. What about the distance between diodes for 16:04:39
2 Board [REDACTED] for Fuji? 16:04:41
3 A. Board [REDACTED] shows a similar behavior. [REDACTED]
[REDACTED]
[REDACTED] 16:05:01
7 Q. Does this Exhibit 1060 accurately reflect the 16:05:04
8 angles for Diodes [REDACTED] 16:05:09
9 within two decimal points? 16:05:12
10 (Witness reviews documents.) 16:05:48
11 A. The angles in the "Angle" columns for [REDACTED]
[REDACTED] accurately represent the 16:05:58
13 magnitude of the angles to a couple decimal places. 16:06:03
14 However, I note that there's a sign inversion. The 16:06:09
15 sign is flipped. 16:06:11
16 Q. And why is there a sign inversion? 16:06:15
17 A. It looks like a mistake in this document. 16:06:21
18 Q. You're talking about Exhibit 1060? 16:06:24
19 A. Yes. 16:06:24
20 Q. If the signs were inverted from how they're 16:06:34
21 depicted in 1060, can you tell me whether or not the 16:06:40
22 beam channels under the heading "Delta" accurately 16:06:44
23 reflect the -- the beam channels for [REDACTED]
[REDACTED] within two decimal places? 16:06:59
25 (Witness performs calculation.)

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. The "Delta" column has a [REDACTED] for 16:08:21

2 [REDACTED] -- 16:08:23

3 Q. And what is the correct value? 16:08:25

4 A. [REDACTED] if I subtract the rounded values. 16:08:29

5 [REDACTED] 16:08:37

6 Q. Using those corrected numbers, do the beam 16:08:45

7 channels [REDACTED] in Fuji? 16:08:52

8 A. No. [REDACTED]

[REDACTED]

[REDACTED] 16:09:06

12 THE REPORTER: "As we said before" --

13 THE WITNESS: [REDACTED]

[REDACTED] 16:09:16

15 BY MR. KIM: 16:09:16

16 Q. And what about the distance between diodes 16:09:19

17 for Board [REDACTED] for Fuji; do they [REDACTED]? 16:09:24

18 MR. JAFFE: Objection; leading. 16:09:26

19 THE WITNESS: No. [REDACTED]

[REDACTED]

[REDACTED] 16:09:41

22 BY MR. KIM: 16:09:41

23 Q. What about Board [REDACTED] do you know if those 16:09:49

24 would likely have [REDACTED]

[REDACTED] 16:09:59

Page 189

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. I have not looked at those angles. Are you 16:10:08
2 asking me to calculate that? 16:10:10

3 Q. Well, I'm wondering if you can -- referring 16:10:13
4 to Exhibit B, if there's anything you can tell me 16:10:18
5 about the diode angles and whether they [REDACTED] [REDACTED]

[REDACTED] 16:10:27

7 A. Specifically you're asking whether the angles 16:10:31
8 change or the delta or channel spacing -- 16:10:35

9 Q. Let's start with the delta. 16:10:37

10 A. Okay. I would have to go ahead and just 16:10:41
11 calculate those out, to calculate all the deltas. I'm 16:10:44
12 not sure I would expect anything different than I'm 16:10:48
13 seeing on the lower portion of [REDACTED] 16:10:53

14 Q. Before you do that, let me ask you, are 16:11:02
15 Boards [REDACTED]

[REDACTED] 16:11:13

17 A. [REDACTED]

[REDACTED] 16:11:27

20 Q. Why is that? 16:11:29

21 A. [REDACTED]

[REDACTED]

[REDACTED] 16:11:52

Page 190

1

8

9

11

12

13

14

16

17

18

19

25

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

16:12:23

Q. Referring back to Exhibit 1060, earlier you

16:12:29

were asked about [REDACTED]

[REDACTED]

16:12:36

Do you recall that?

16:12:37

A. Yes.

16:12:37

Q. For Board [REDACTED] in Fuji, does the distance

16:12:43

between [REDACTED]

[REDACTED]?

16:12:55

A. I'm sorry. You've asked whether the distance

16:13:00

between the [REDACTED] --

16:13:05

THE REPORTER: I'm sorry, I can't -- what?

16:13:11

THE WITNESS: You've asked whether the two [REDACTED]

[REDACTED]

[REDACTED]

16:13:37

BY MR. KIM:

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. Um-hum. Let me ask it a different way. 16:13:45

2 Does the [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ? 16:14:10

6 MR. JAFFE: Objection; form, leading. 16:14:14

7 THE WITNESS: There is a [REDACTED]

[REDACTED]

[REDACTED] 16:14:40

12 BY MR. KIM: 16:14:40

13 Q. Okay. And earlier you were asked about the 16:14:47

14 term [REDACTED] correct? 16:14:48

15 A. Yes. 16:14:50

16 Q. And [REDACTED] refers to what when 16:14:53

17 you're using the term? 16:14:56

18 A. It depends on the context. I have to be 16:14:59

19 careful to clarify. [REDACTED] [REDACTED]

[REDACTED]

[REDACTED] 16:15:20

24 Q. And how -- how do you use the term? 16:15:23

25 A. Most of the time we've been talking, at Uber, 16:15:31

Page 192

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 about [REDACTED] I would have assumed it just 16:15:36
2 meant angle. 16:15:37
3 Q. Angular spacing? 16:15:38
4 A. Angular spacing. 16:15:40
5 MR. JAFFE: Sorry. Objection; leading to the last 16:15:58
6 question. 16:15:58
7 BY MR. KIM: 16:15:58
8 Q. Okay. Can we go back to Exhibit 160. 16:16:04
9 Take a look at the second page, bearing Bates 16:16:35
10 stamp UBER00008496. 16:16:41
11 A. Yes. 16:16:41
12 Q. And do you see the values next to angles 16:16:49
13 [REDACTED] 16:16:56
14 A. Yes. 16:16:57
15 Q. Do the deltas [REDACTED]
[REDACTED] 16:17:04
17 (Witness performs calculation.)
18 A. Yes. 16:17:22
19 Q. And when you were asked about -- in the 16:17:25
20 e-mail at the end of this document, under "A" -- 16:17:33
21 A. Yes. 16:17:39
22 Q. -- where it says, [REDACTED] [REDACTED]
23 [REDACTED] 16:17:46
24 A. Yes. 16:17:46
25 Q. And you were asked if that would describe 16:17:49

1	Fuji.	16:17:50
2	Do you recall that?	16:17:52
3	A. I think so.	16:17:55
4	Q. Would that also apply to Velodyne's LiDAR	16:17:59
5	too?	16:18:00
6	MR. JAFFE: Objection; form, leading.	16:18:02
7	THE WITNESS: Could you be more specific.	16:18:05
8	BY MR. KIM:	16:18:06
9	Q. Does Velodyne have a LiDAR with 64 beams?	16:18:10
10	MR. JAFFE: Same objections.	16:18:11
11	THE WITNESS: Yes, Velodyne has a LiDAR with 64	16:18:14
12	beams.	16:18:15
13	BY MR. KIM:	16:18:15
14	Q. And can you place them individually?	16:18:17
15	MR. JAFFE: Same objections.	16:18:21
16	THE WITNESS: Can? Within some limit, that they	16:18:25
17	don't crash into each other, but Velodyne 64 doesn't.	16:18:34
18	BY MR. KIM:	16:18:34
19	Q. Do you know one way or the other whether or	16:18:37
20	not A specifically refers to the Fuji design?	16:18:41
21	A. I'm sorry. What do you mean?	16:18:43
22	Q. Do you know whether A was intended -- do you	16:18:46
23	know one way or the other whether A was intended to	16:18:49
24	refer to Fuji?	16:18:51
25	MR. JAFFE: Objection; form.	16:18:52

1 THE WITNESS: This does not refer to Fuji. It 16:19:00
2 could not refer to Fuji. And if you look at the 16:19:08
3 e-mail -- let me find this. Sorry. 16:19:14
4 Perhaps Section B discussion -- it sounds to 16:19:22
5 me like this is discussing Spider, where we're talking 16:19:28
6 about groups of eight. The date would be consistent 16:19:33
7 with what we ultimately called Spider. 16:19:41
8 BY MR. KIM: 16:19:41
9 Q. Okay. So looking at UBER00008499, you 16:19:50
10 believe that what's described in A there that you were 16:19:53
11 asked about earlier actually refers to Spider and not 16:19:56
12 Fuji? 16:19:58
13 A. That's what it seems like to me, yes. 16:20:01
14 Q. I would like to go back to your Exhibit B 16:20:11
15 from your original declaration. 16:20:14
16 Do you see that column with the heading 16:20:32
17 [REDACTED]
18 A. Yes. There's two. 16:20:36
19 Q. Okay. Let's look at the leftmost column. 16:20:42
20 A. Yes. 16:20:43
21 Q. Are [REDACTED]
[REDACTED] on Fuji boards? 16:20:49
23 MR. JAFFE: Objection; form and leading. 16:20:52
24 THE WITNESS: No. As I understand it, the 16:20:55
25 [REDACTED] 16:21:01

1 [REDACTED] 16:21:04

2 BY MR. KIM: 16:21:04

3 Q. Do you have an understanding as to why there 16:21:07

4 are [REDACTED] listed there? 16:21:09

5 A. Yeah. As I was discussing earlier, my 16:21:17

6 understanding is these coordinates referencing the 16:21:22

7 [REDACTED] were generated early in the development of 16:21:29

8 Fuji when [REDACTED] 16:21:33

9 More specifically, these coordinates were given to the 16:21:37

10 electrical engineer before the electrical engineer had 16:21:39

11 laid out the circuits onto the board and added the 16:21:42

12 fiducial mark onto the board. 16:21:45

13 Q. Are there any plans at Uber to use [REDACTED]

[REDACTED] on any transmit boards for 16:22:07

15 Fuji? 16:22:08

16 A. Not that I'm aware of. 16:22:11

17 Q. Okay. You can set that one aside. 16:22:28

18 Actually, a couple follow-up questions on 16:22:46

19 Exhibit 155. 16:22:48

20 I believe you were asked when this document 16:22:52

21 was created -- let me just ask it. 16:22:56

22 Do you know when this document was created? 16:22:58

23 MR. JAFFE: Objection; form. 16:23:01

24 THE WITNESS: Which version are you referring to? 16:23:03

25 BY MR. KIM: 16:23:03

1 Q. Do you know if these numbers in Exhibit 16:23:08
2 155 -- if they are still accurate today for Fuji? 16:23:12
3 A. To my knowledge, the numbers in this document 16:23:16
4 are still accurate to what we're placing on our laser 16:23:20
5 diode boards. We have not revised or changed the 16:23:25
6 design of our [REDACTED] laser boards -- 16:23:29
7 Q. Since what time? 16:23:30
8 A. -- or [REDACTED] for that matter. 16:23:34
9 Since they were first built. 16:23:36
10 Q. And when was that? 16:23:37
11 A. Sometime in December the design was created 16:23:48
12 by the electrical engineer and sent out. Sometime in 16:23:51
13 mid January, we first placed laser diodes on this 16:24:00
14 board. 16:24:00
15 Q. Just to be clear, so -- 16:24:02
16 A. Let me be specific. On Board A. 16:24:05
17 Q. Sure. 16:24:05
18 Okay. Document 155, this was not created for 16:24:13
19 the purposes of litigation; is that correct? 16:24:15
20 A. That's correct. 16:24:17
21 Q. Was this created in the ordinary course of 16:24:20
22 business, to your knowledge? 16:24:21
23 A. Yes. 16:24:22
24 Q. So how does the information reflected in 155 16:24:38
25 relate to the beam parameters that you received from 16:24:45

Page 197

1 Scott Boehmke -- 16:24:46

2 MR. JAFFE: Objection; leading, outside the scope. 16:24:51

3 BY MR. KIM: 16:24:51

4 Q. -- that you discussed in paragraph 18 of your 16:24:55

5 original declaration? 16:24:57

6 MR. JAFFE: Objection; outside the scope, improper 16:25:00

7 redirect. 16:25:01

8 THE WITNESS: 155? 151? 16:25:20

9 BY MR. KIM:

10 Q. It's either 151 or 152. It's 151. 16:25:26

11 (Witness reviews documents.) 16:25:58

12 A. Do you have a paragraph? 16:25:59

13 Q. Paragraph 18. 16:26:00

14 A. Thank you. Okay. Okay. 18. 16:26:08

15 (Witness reviews document.) 16:26:19

16 A. Okay. 16:26:20

17 Q. And for the record, earlier today you were 16:26:22

18 asked about this paragraph. 16:26:25

19 Do you recall that? 16:26:26

20 A. Yes. 16:26:26

21 MR. JAFFE: Objection; leading. 16:26:29

22 BY MR. KIM: 16:26:29

23 Q. And you were asked about whether there was 16:26:33

24 any evidence that the information you received from 16:26:38

25 Scott Boehmke referred to in this paragraph was 16:26:41

1 actually used in Fuji, and you referred to CAD files. 16:26:45

2 What did you -- what CAD files are you 16:26:47

3 referring to? 16:26:47

4 MR. JAFFE: Objection; form and leading. 16:26:51

5 THE WITNESS: I was referring -- 16:26:52

6 MR. JAFFE: Beyond the scope. 16:26:55

7 THE WITNESS: I was referring to mechanical CAD 16:26:58

8 files in the SolidWorks software created by Gaetan 16:27:05

9 that have the angles specified by Scott Boehmke that 16:27:14

10 end up terminating in a set of points for each laser 16:27:20

11 diode emitting point. 16:27:24

12 He then also included a CAD model of the 16:27:29

13 laser board outline that he developed that also had 16:27:33

14 those same emitting points on there. And then, 16:27:41

15 finally, you can see the theta angle matches the 16:27:46

16 prescribed angles that we got from Scott. 16:27:50

17 BY MR. KIM: 16:27:50

18 Q. Can you explain step by step the process from 16:27:54

19 going from the angles that you received from Scott -- 16:27:57

20 A. Okay.

21 Q. -- to what ultimately ended up being the 16:28:02

22 diode placement angles reflected in Exhibit B of your 16:28:08

23 original declaration and marked as Exhibit 155 for 16:28:11

24 your deposition? 16:28:13

25 MR. JAFFE: Objection; form, leading. This is 16:28:15

1 improper redirect, outside the scope. We're just 16:28:20
2 going to object to all this evidence; I think I've 16:28:24
3 made that clear. 16:28:25

4 THE WITNESS: My understanding of the process that 16:28:28
5 led to the coordinates we have in Exhibit 155, 16:28:32
6 starting with angles that Scott Boehmke provided, was 16:28:36
7 that Gaetan designed a lens in Zemax. We had decided 16:28:44
8 on 150 millimeter focal length, chosen material for 16:28:49
9 the lens. 16:28:50

10 From the lens optimization provided by the 16:28:52
11 Zemax software, we had the focal length behind the 16:28:59
12 lens to the beginning of a focal surface. And he had 16:29:05
13 a radius of curvature for the focal surface. 16:29:10

14 From that information in Zemax, you can take 16:29:14
15 that into SolidWorks software, model up a curved 16:29:19
16 surface with the same radius of curvature as the focal 16:29:23
17 surface defined by Zemax. That could be -- he modeled 16:29:30
18 that at a location behind the lens with a consistent 16:29:36
19 focal length developed in Zemax. 16:29:41

20 He then, as I understand it, created lines or 16:29:48
21 rays in the CAD geometry that reflected the vertical 16:29:52
22 angles specified by Scott Boehmke, one by one, 16:29:57
23 individually, for the [REDACTED] different beam angles for the 16:30:01
24 [REDACTED] boards in the mid-range cavity. 16:30:05

25 He extended those lines or rays until it 16:30:10

1 intersected this curved focal surface. The point of 16:30:17
2 intersection defined the location for the laser diodes 16:30:23
3 emitting surface. He then put that into his model, 16:30:30
4 modeled a PCB behind that. 16:30:33

5 In this case specifically, he had [REDACTED] 16:30:40
6 So he had [REDACTED] where rays would 16:30:48
7 intersect a -- I guess you would call this a 16:30:54
8 two-dimensional flat, curved focal surface. 16:30:57

9 From that, he had designed this laser board 16:31:06
10 mechanical outline relative to that outline and 16:31:10
11 relative to the mounting features that were included 16:31:13
12 in that design, including [REDACTED]. He had 16:31:16
13 locations for laser diodes on that board. 16:31:21

14 Individually, those models of the Laser 16:31:28
15 Boards [REDACTED] were sent to the electrical 16:31:32
16 engineer, Will Treichler, who then proceeded to lay 16:31:38
17 out the circuit behind each of the laser diodes. 16:31:41

18 BY MR. KIM:

19 Q. And earlier I believe you mentioned Florin. 16:31:49

20 What was Florin's role in all this? 16:31:52

21 A. Florin is another electrical engineer. He 16:31:55
22 used to work at Velodyne. I consider him a senior 16:32:00
23 electrical engineer. So I asked him to design some 16:32:02
24 candidate laser pulsing circuits. He designed that 16:32:09
25 test board. And the circuits on there, he tested the 16:32:15

1 output, selected one as a preferred candidate and gave 16:32:21
2 that circuit design to Will Treichler so that Will 16:32:26
3 could do the layout of all [REDACTED] channels, basically 16:32:30
4 copying that one circuit [REDACTED] times. 16:32:33

5 Q. You mentioned [REDACTED], that was work -- 16:32:40
6 when did [REDACTED] start? 16:32:43

7 A. I don't know. It was -- it seemed to be 16:32:49
8 under way by the time I already came to Otto. So I 16:32:54
9 can't say when it started. 16:32:55

10 Q. And you started at Otto when? 16:32:56

11 A. Early May 2016. 16:33:00

12 Q. And [REDACTED], what did that relate to? 16:33:06

13 MR. JAFFE: Objection; form. 16:33:09

14 THE WITNESS: [REDACTED] referred to what appeared 16:33:15
15 to me to be a direct diode projection LiDAR sensor. 16:33:21

16 BY MR. KIM: 16:33:21

17 Q. And was [REDACTED] -- any of the work from 16:33:28
18 [REDACTED] incorporated into Fuji? 16:33:31

19 A. Yes. The FAC lens design that was designed 16:33:37
20 during that time frame, ultimately arrived from the 16:33:41
21 supplier, was available when we needed to decide 16:33:45
22 whether to pivot to Fuji and has since become part of 16:33:50
23 the Fuji product. 16:33:52

24 Furthermore, I believe at that same time 16:33:56
25 frame, laser diodes had been purchased and we probably 16:34:00

1 used those laser diodes as well. 16:34:03

2 Q. Were there any other components of Fuji that 16:34:11

3 were started prior to October 2016? 16:34:14

4 MR. JAFFE: Objection; leading, form. 16:34:17

5 THE WITNESS: I don't recall any -- any others. 16:34:25

6 BY MR. KIM: 16:34:25

7 Q. If we can turn to your supplemental 16:34:34

8 declaration. I believe that's No. 152. Turn to 16:34:56

9 paragraph 7. 16:34:57

10 Why didn't you mention Anthony Levandowski in 16:35:05

11 paragraph 7? 16:35:07

12 MR. JAFFE: Objection; form. 16:35:12

13 THE WITNESS: I don't see the point of mentioning 16:35:14

14 Anthony Levandowski in paragraph 7. 16:35:18

15 BY MR. KIM: 16:35:18

16 Q. What was paragraph 7 intended to convey? 16:35:23

17 A. Paragraph 7 conveys the design of Spider -- 16:35:32

18 or some aspect of the design of Spider, specifically 16:35:38

19 the fiber laser. 16:35:39

20 Q. Let's move to paragraph No. 13. 16:35:57

21 Do you recall being asked whether or not the 16:36:11

22 figure depicted in paragraph 13 disclosed [REDACTED] 16:36:20

23 A. Yes. 16:36:20

24 Q. And you said it was implied. 16:36:23

25 What did you mean by that? 16:36:25

1 MR. JAFFE: Objection; leading and form. 16:36:28

2 THE WITNESS: What I was trying to convey was if a 16:36:32

3 person was familiar with this spreadsheet and what 16:36:36

4 these fields meant, that you would understand that [REDACTED]

[REDACTED]

[REDACTED] 16:36:55

7 So [REDACTED]

[REDACTED] And so this -- in my opinion, this documents 16:37:03

9 at some point in time knowledge of our design intent 16:37:07

10 to have [REDACTED] 16:37:10

11 BY MR. KIM: 16:37:10

12 Q. And what document is this screen shot taken 16:37:17

13 from or excerpt taken from? 16:37:20

14 MR. JAFFE: Objection; leading. 16:37:21

15 THE WITNESS: My understanding is this came from 16:37:23

16 the spreadsheet that Scott used to define the vertical 16:37:28

17 angles for the LiDAR designs, including Fuji. 16:37:32

18 BY MR. KIM: 16:37:32

19 Q. Is that the spreadsheet that you used to 16:37:36

20 determine the diode placement for Fuji? 16:37:41

21 A. Yes, that's my understanding. 16:37:44

22 MR. KIM: Mark this. 16:38:52

23 MR. JAFFE: Are you marking a new exhibit on 16:38:55

24 redirect? Mr. Kim? 16:39:02

25 MR. KIM: Yes. 16:39:03

1 MR. JAFFE: Are you trying to mark a new exhibit 16:39:05
2 on redirect? 16:39:06
3 MR. KIM: This is an Exhibit I to Mr. Boehmke's 16:39:13
4 declaration. 16:39:14
5 MR. JAFFE: You're not answering my question. 16:39:15
6 Are you trying to introduce a new exhibit on 16:39:18
7 redirect? 16:39:19
8 MR. KIM: I am. 16:39:20
9 MR. JAFFE: Okay. We're going to object to this 16:39:22
10 exhibit as clearly outside the scope, and we're going 16:39:25
11 to move to strike all of this testimony. So I want to 16:39:27
12 make that clear for the record.
13 This is a court-ordered deposition because 16:39:30
14 you sandbagged us on surreply. And you're trying to 16:39:34
15 introduce more evidence. 16:39:35
16 MR. KIM: I'm just trying to confirm --
17 MR. JAFFE: That's egregious. 16:39:35
18 MR. KIM: I'm asking him about the source of 16:39:39
19 what's depicted on page 8 of his supplemental 16:39:42
20 declaration, which you questioned him extensively on. 16:39:43
21 MR. JAFFE: I did not question him on this 16:39:49
22 exhibit. 16:39:50
23 MR. KIM: You questioned him on the surreply. And 16:39:50
24 you've asked him for what document -- documentary 16:39:54
25 evidence exists to show that the beam parameters that 16:40:00

Page 205

1 he received from Mr. Boehmke were used to determine 16:40:04
2 the diode placement for the Fuji transmit boards. 16:40:09
3 MR. JAFFE: And now you're just coaching the 16:40:12
4 witness. So that's fine. 16:40:13
5 So we're going to object to all this 16:40:15
6 testimony. 16:40:16
7 MR. KIM: Okay. So -- understood. 16:40:20
8 MR. JAFFE: Do I have a running objection to this 16:40:23
9 document? 16:40:23
10 MR. KIM: Yes, you do. 16:40:25
11 MR. JAFFE: Okay. 16:40:25
12 MR. KIM: Can we mark that as Document 1061. 16:40:29
13 MR. JAFFE: This is completely improper. 16:40:31
14 (Defendants' Exhibit 1061 was marked.) 16:40:49
15 BY MR. KIM: 16:40:49
16 Q. So, Mr. Haslim, what's been marked as 1061, 16:40:53
17 is that what's -- is this the source document for what 16:40:58
18 you excerpted in paragraph 13 of your surreply? 16:41:04
19 MR. JAFFE: Objection; leading and form. And 16:41:05
20 objection in addition to my running objection. 16:41:09
21 THE WITNESS: Yes. This is -- Figure 6 is 16:41:31
22 excerpted from apparently the first page of this 16:41:36
23 spreadsheet. 16:41:38
24 BY MR. KIM: 16:41:38
25 Q. And this is what you used to -- let me ask it 16:41:52

1 a different way. 16:41:53

2 Is this -- did you use this -- the 16:41:55

3 information in this document to arrive at what's 16:42:00

4 depicted in Document -- Exhibit 155 that we were 16:42:07

5 discussing earlier? 16:42:08

6 MR. JAFFE: Objection; leading and form. 16:42:11

7 THE WITNESS: Yes, to my knowledge, it appears 16:42:27

8 that this document, Exhibit 1061 -- that that 16:42:31

9 information was used in the derivation of the 16:42:35

10 information in Exhibit 155. 16:42:39

11 BY MR. KIM: 16:42:39

12 Q. And how can you tell? 16:42:43

13 MR. JAFFE: Same objections. 16:42:44

14 THE WITNESS: Besides starting to become familiar 16:42:48

15 with these angles, what I would do is I would take the 16:42:53

16 angles in this first column, "Angle" column. I would 16:42:58

17 subtract 12, because the cavity was tilted 12 degrees. 16:43:06

18 Realize there's another sign inversion between these 16:43:10

19 two documents. And I think we can show -- if you want 16:43:14

20 I can do a handful of calculations. I think it will 16:43:18

21 show that this, therefore, is the source for angles 16:43:21

22 for [REDACTED] 16:43:23

23 BY MR. KIM: 16:43:23

24 Q. What calculations could you do? 16:43:25

25 A. Specifically, like I said, the first telltale 16:43:31

1 would be looking at the angles, Exhibit 155 "Theta" 16:43:38
2 column and the "Angle" column in Exhibit 1061, noting 16:43:47
3 there would be a 12-degree offset and a sign shift 16:43:52
4 between the angles -- the first [REDACTED] angles in Exhibit 16:43:56
5 1061 and the angles under "Theta" for [REDACTED] 16:44:05
6 Q. Can you go ahead and do some calculations to 16:44:07
7 verify it. 16:44:09
8 MR. JAFFE: Objection -- 16:44:09
9 THE WITNESS: Yes. 16:44:12
10 MR. JAFFE: -- form, leading. And still the 16:44:18
11 objection -- same running objection that I mentioned 16:44:21
12 earlier. 16:44:22
13 (Witness performs calculation.)
14 THE WITNESS: How many would you like me to do? 16:45:01
15 I've done the first three angles specified by Scott. 16:45:05
16 And when I invert the sign, subtract 12 degrees, I get 16:45:10
17 [REDACTED] Knowing that 16:45:17
18 we decided to [REDACTED]

[REDACTED] Again, we've seen 16:45:53

1 this before, maybe it's a rounding error. 16:45:57

2 Do you want me to do any more? 16:46:02

3 Q. No, that's fine. 16:46:03

4 Can you turn to page 11 of your supplemental 16:46:06

5 declaration. 16:46:07

6 MR. JAFFE: How long are you planning to go, 16:46:14

7 Mr. Kim? Shall we take a break? We've been going an 16:46:18

8 hour. 16:46:18

9 MR. KIM: Should be wrapping up soon. 16:46:21

10 THE WITNESS: What's the number? Is that 151? 16:46:23

11 BY MR. KIM: 16:46:23

12 Q. Yes -- 152. 16:46:29

13 A. 152?

14 Q. Yes, 152.

15 A. I got it. 16:46:32

16 Q. Okay. Remember you were asked about -- 16:46:34

17 A. Sorry. Paragraph? 16:46:35

18 Q. Page 11. 16:46:36

19 A. Page 11. 16:46:37

20 Q. You were asked about the table depicted in 16:46:42

21 page 11. 16:46:42

22 Do you recall that? 16:46:43

23 A. Yes. 16:46:44

24 Q. And you were asked whether or not it was 16:46:46

25 modified with the letters [REDACTED] 16:46:51

1	A. Yes.	16:46:51
2	Q. Was it modified in any other way other than	16:46:54
3	the addition of [REDACTED] -- the letters and colors	16:46:58
4	in the first column?	16:47:01
5	A. No. I think . . . check the exact angles	16:47:07
6	again from Scott's exhibit. Go back up to the top.	16:47:24
7	(Witness reviews document.)	
8	A. Okay. These are the same angles as in	16:47:46
9	Scott's spreadsheet.	16:47:47
10	Q. What was the source of what's depicted on	16:47:50
11	page 11 of your supplemental declaration?	16:47:53
12	MR. JAFFE: Objection; form.	16:47:55
13	THE WITNESS: The source of the angle and the	16:47:57
14	delta would have been directly from Scott's	16:47:58
15	spreadsheet. The source of the [REDACTED] could have	16:48:05
16	come from me telling whoever prepared this that [REDACTED] had	16:48:08
17	[REDACTED]. And it could also be	16:48:11
18	determined independently by looking at Exhibit 155 and	16:48:18
19	looking at the theta board -- excuse me -- the theta	16:48:21
20	angles associated with Boards [REDACTED] likewise for	16:48:26
21	[REDACTED]	16:48:27
22	Q. Can you confirm whether or not those	16:48:28
23	notations are accurate?	16:48:30
24	A. Yes. So, again, going through the difference	16:48:37
25	between Exhibit 155, being that it has 12 degrees	16:48:41

1 removed and a sign change, I can immediately -- [REDACTED]

[REDACTED] should be consistent. 16:49:00

5 I'm going to take the next angle down that's 16:49:03

6 labeled "A" in green. [REDACTED]

[REDACTED] in Exhibit 155. 16:49:19

8 At this point, we've got our pattern [REDACTED] 16:49:23

9 The only board left is [REDACTED] so I'm not going to bore 16:49:27

10 you. The whole purpose of going to [REDACTED]

[REDACTED] 16:49:44

15 Do you want me to do it for [REDACTED] 16:49:48

16 Q. Sure. 16:49:55

17 MR. JAFFE: Objection; form and leading. 16:49:58

18 THE REPORTER: And at some point, I need to take a 16:49:58
19 break to send the transcript because I'm --

20 MR. KIM: Okay.

21 MR. JAFFE: Okay.

22 MR. KIM: Okay. Do you want to take a break now?

23 THE REPORTER: Yes, I really do.

24 MR. KIM: Let's take a break now. 16:50:17

25 THE VIDEOGRAPHER: We are off the record at 4:50 16:50:19

Page 211

1	p.m.	16:50:19
2	(Recess taken.)	
3	THE VIDEOGRAPHER: We are back on the record at	17:03:55
4	5:04 p.m.	17:03:57
5	BY MR. KIM:	17:03:57
6	Q. Mr. Haslim, we were going over your	17:04:00
7	supplemental declaration.	17:04:03
8	If you could turn to page 12 of that	17:04:09
9	document.	17:04:09
10	A. Yes.	17:04:10
11	MR. JAFFE: I'm sorry. I just realized I left	17:04:13
12	something on the printer. Just give me 30 seconds,	17:04:17
13	less than 30 seconds.	17:04:19
14	(Pause in proceedings.)	17:05:26
15	(Discussion off the record.)	17:05:26
16	MR. KIM: Are we still on?	17:05:36
17	THE VIDEOGRAPHER: Yes.	17:05:37
18	MR. KIM: Okay.	17:05:38
19	BY MR. KIM:	17:05:38
20	Q. Mr. Haslim, we were discussing Depo Exhibit	17:05:42
21	152, which is your supplemental declaration.	17:05:45
22	And you recall being asked about the chart on	17:05:48
23	page 12?	17:05:50
24	A. Yes.	17:05:51
25	Q. And you were asked whether or not this chart	17:05:54

Page 212

1 references vertical spacing of the diodes. 17:05:58

2 Do you recall that? 17:06:00

3 MR. JAFFE: Objection; leading, form. 17:06:01

4 THE WITNESS: Not exactly. I don't remember 17:06:03

5 exactly how I was asked. 17:06:05

6 BY MR. KIM: 17:06:05

7 Q. Let me just ask you: Does this reference 17:06:08

8 vertical spacing of diodes for the Fuji? 17:06:13

9 MR. JAFFE: Objection; form. 17:06:15

10 THE WITNESS: The columns labeled "Current," to my 17:06:20

11 knowledge, represent the vertical channel angles of 17:06:26

12 the Fuji. So the difference between them could be 17:06:29

13 vertical spacing, if it's meant to imply a vertical 17:06:33

14 angle. 17:06:35

15 BY MR. KIM: 17:06:35

16 Q. Okay. What are the numbers listed under the 17:06:37

17 heading "November 16"? 17:06:39

18 A. Those are angles prescribed by Scott Boehmke 17:06:45

19 in a version of his spreadsheet dated November 16th. 17:06:51

20 Q. And is that the same document we were looking 17:06:53

21 at earlier? 17:06:54

22 A. Yes. That would be Exhibit 1061. 17:07:06

23 Q. Are the numbers accurate? Are -- the numbers 17:07:10

24 in 152 accurately reflect what was in the November 16 17:07:16

25 document, which is labeled 1061? 17:07:20

Page 213

1 (Witness reviews documents.) 17:08:31

2 A. Yes. Page 12, columns for [REDACTED] laser 17:08:35

3 boards under the column "November 16" are accurately 17:08:38

4 representing the angles in Exhibit 1061. 17:08:45

5 Q. What about the numbers under the "Current" 17:08:46

6 heading; where are those from? 17:08:49

7 A. Those are representative of what we're 17:08:53

8 actually building into the Fuji. Those would be 17:08:57

9 mirrored after a sign change in a 12 degree offset in 17:09:06

10 the theta angles listed on Exhibit 155 representing 17:09:13

11 the actual angles of the laser diodes and their 17:09:18

12 intended pointing angles. 17:09:20

13 Q. And the numbers in the chart on page 12 of 17:09:23

14 Exhibit 152, your supplemental declaration, do they 17:09:27

15 appear to be accurate? 17:09:30

16 A. 152 is right in front of me. 17:09:41

17 Repeat your question. 17:09:42

18 Q. Do -- the numbers under the "Current" 17:09:43

19 heading, are they accurate? 17:09:46

20 MR. JAFFE: Objection; leading, form. 17:09:49

21 THE WITNESS: I feel like we went through an 17:09:55

22 exercise like this. So when you say "accurate," do 17:10:13

23 you have a tolerance -- 17:10:15

24 THE REPORTER: "Tolerance bend"? 17:10:15

25 THE WITNESS: -- tolerance bend on that one, or 17:10:20

Page 214

1 tolerance range? 17:10:21

2 BY MR. KIM:

3 Q. Can you just describe where these numbers 17:10:23

4 come from generally? 17:10:25

5 A. So generally, under the "Current" column, 17:10:28

6 these are -- would be the angles that we designed the 17:10:31

7 Fuji to. 17:10:34

8 Q. And how would you -- are these numbers from 17:10:40

9 Document 155, or are they based on any numbers -- 17:10:44

10 A. These are reflected after the mathematical 17:10:53

11 offset and sign change. They're represented in 17:10:58

12 Exhibit 155 or, I should say, reflected in there. 17:11:03

13 They're also the angles -- to my understanding, these 17:11:07

14 are the angles that we used designing Fuji. 17:11:11

15 Q. Do you see the paragraph right above that 17:11:38

16 chart? 17:11:43

17 A. Yes. 17:11:43

18 Q. Is that how -- does that accurately depict 17:11:47

19 how the numbers under the "Current" heading were 17:11:50

20 derived? 17:11:51

21 MR. JAFFE: Objection; form, leading. 17:11:54

22 THE WITNESS: I'm sorry. I don't understand what 17:11:55

23 you're asking. 17:11:57

24 BY MR. KIM: 17:11:57

25 Q. I'm just asking if you can explain how the 17:12:01

1 numbers under the "Current" heading are extracted from 17:12:05
2 the numbers in Document 155. 17:12:11

3 A. So the theta angles in Document 155 for 17:12:18
4 Boards [REDACTED] need a 12 degree additive offset 17:12:24
5 applied to them and a sign change to the answer in 17:12:27
6 order to represent the angles you see in the "Current" 17:12:30
7 column. 17:12:31

8 The reason for the 12 degrees is that the 17:12:34
9 medium-range cavity is tilted down by 12 degrees. And 17:12:39
10 as far as the sign change, I attribute that to simply 17:12:42
11 an arbitrary sign convention in the angles that place 17:12:48
12 the -- 17:12:48

13 THE REPORTER: "That place the" --

14 THE WITNESS: -- laser diodes on the board. 17:12:52

15 BY MR. KIM:

16 Q. And is that described in the paragraph 17:12:57
17 immediately preceding the table? 17:13:00

18 A. Let me make sure they account for the sign 17:13:12
19 change. 17:13:25

20 (Witness reviews documents.) 17:13:25

21 A. So the paragraph before the table that -- 17:13:34
22 referring to in Exhibit 152 describes or accounts for 17:13:38
23 the 12 degree offset. But as I see it, it doesn't 17:13:46
24 explain the sign change. 17:13:49

25 Q. So in that paragraph above, where it refers 17:13:55

1 to [REDACTED] where does th t number co e from? 17:13:59

2 A. Without explanation, it's implying the sign 17:14:06

3 change was being taken into consideration to arrive at 17:14:11

4 the [REDACTED] [REDACTED] 17:14:15

5 Q. And where does that number come from? 17:14:20

6 MR. JAFFE: Objection; form, leading. 17:14:22

7 THE WITNESS: Which number? 17:14:23

8 BY MR. KIM: 17:14:23

9 Q. [REDACTED] 17:14:26

10 A. Okay. So the theta angle documented for 17:14:36

11 Laser A1 in Exhibit 155 is [REDACTED] This is 17:14:49

12 explaining -- this is a direct one-to-one mapping with 17:14:52

13 the magnitude -- 17:14:53

14 THE REPORTER: "The magnitude" --

15 THE WITNESS: -- magnitude of the number in 17:14:58

16 parentheses, [REDACTED] But the sign change is correcting 17:15:03

17 for the fact that angles under "Theta" in Exhibit 155 17:15:12

18 have an arbitrary sign flip. 17:15:17

19 BY MR. KIM: 17:15:17

20 Q. So just looking at the number negative [REDACTED] 17:15:28

21 for Diode A1, does that accurately reflect the 17:15:37

22 information for A1 in Document 155 with the 17:15:42

23 understanding that there's a sign flip and a negative 17:15:46

24 12 degree offset? 17:15:48

25 MR. JAFFE: Objection; form, leading. 17:15:50

Page 217

1 THE WITNESS: Yes. 17:15:51

2 BY MR. KIM: 17:15:51

3 Q. And what about the "Delta Degree" column; 17:15:56

4 what does that depict? 17:15:59

5 MR. JAFFE: Objection; form, leading. 17:16:02

6 THE WITNESS: So the "Delta" column in 152 is 17:16:11

7 accounting for -- best way to explain it -- is showing 17:16:18

8 a discrepancy between the angles we designed the Fuji 17:16:24

9 to and the angles prescribed in Scott Boehmke's 17:16:29

10 November 16th file revision. 17:16:32

11 BY MR. KIM: 17:16:32

12 Q. So how did you calculate those numbers? 17:16:34

13 A. The "Delta Degree" column is simply the 17:16:38

14 difference between numbers in the same row to the left 17:16:43

15 of it. That is to say, for instance, in [REDACTED]

[REDACTED] under the "November 16" column and a 17:16:53

17 [REDACTED] under the "Current" column for A1. 17:16:59

18 Those numbers are subtracted. The answer is 17:17:03

19 placed into the "Delta Degree" column. And this 17:17:07

20 process would be repeated for Boards [REDACTED] 17:17:12

21 Q. Do you consider these to be small or large 17:17:16

22 discrepancies? 17:17:17

23 MR. JAFFE: Objection; form. 17:17:21

24 THE WITNESS: That's a rather small angle, in my 17:17:25

25 opinion, but it is a discrepancy. 17:17:28

Page 218

1 BY MR. KIM: 17:17:28

2 Q. And is there any conclusions you can draw 17:17:31

3 from the fact there is something that you consider to 17:17:36

4 be a small discrepancy? 17:17:39

5 MR. JAFFE: Objection; form, leading. Same 17:17:44

6 running objection that I've had on all this testimony 17:17:46

7 as improper redirect and against the court's order. 17:17:55

8 THE WITNESS: I don't have a definitive 17:17:55

9 understanding for this discrepancy. I have a 17:18:03

10 suspicion, but I haven't verified it. So I still 17:18:08

11 don't know for sure why we accumulated this increase 17:18:12

12 in error. I believe, given the history of working 17:18:18

13 with Scott Boehmke and him coming to the office, that 17:18:21

14 there may have been a revision change while we were 17:18:27

15 working together that somehow maybe didn't get saved 17:18:31

16 into his spreadsheet. 17:18:32

17 BY MR. KIM: 17:18:32

18 Q. But do you have any doubt that the document 17:18:38

19 you referenced in your declaration and described as 17:18:42

20 the November 16 document, which today you confirm 17:18:48

21 referred to Deposition Exhibit 1061, was the basis for 17:18:54

22 the numbers in your Exhibit B, Document 155? 17:19:01

23 MR. JAFFE: Objection; leading, form. 17:19:02

24 THE WITNESS: I'm comfortable saying that I 17:19:11

25 remember Scott's spreadsheet defining the angles that 17:19:16

1 we locked in for the Fuji design. Clearly, we're 17:19:21
2 showing up to a [REDACTED] degree discrepancy from his 17:19:29
3 document and this document (indicating). 17:19:30

4 So I would say it's evidence that he was 17:19:39
5 working with us -- it supports the fact that he 17:19:42
6 was working with us, but still raises that 17:19:45
7 question of that small angle change. 17:19:48

8 BY MR. KIM: 17:19:48

9 Q. After Scott provided you the November 16 17:19:56
10 document, did you work with Scott to further optimize 17:19:59
11 any of these beam angles? 17:20:02

12 MR. JAFFE: Objection; leading, form. 17:20:05

13 THE WITNESS: Somewhere around November 16th, when 17:20:08
14 Scott was visiting with us, we locked down the angles 17:20:12
15 for the Fuji. We subsequently made one change to the 17:20:17
16 angles. When it came closer time to actually building 17:20:22
17 the Fuji, we made a design decision to shift the 17:20:27
18 angles for the [REDACTED] boards. 17:20:32

19 Scott's original prescription had [REDACTED]

[REDACTED] 17:20:41

21 I felt that was wasteful. I believe his rationale 17:20:45
22 was to accommodate manufacturing tolerances. So I 17:20:52
23 made a guess at manufacturing tolerance that we 17:20:55
24 could hold comfortably and added an offset for the 17:20:59
25 lasers on [REDACTED] boards. 17:21:05

1	Go ahead.	17:21:07
2	BY MR. KIM:	17:21:07
3	Q. Are the current beam angles for [REDACTED]	17:21:11
4	reflected in Exhibit 155 that we were looking at	17:21:14
5	earlier?	17:21:15
6	A. Yes.	17:21:27
7	Q. Okay.	17:21:34
8	A. Let me double check. Hold on. Sorry.	17:21:37
9	(Witness performs calculation.)	
10	A. Okay. Yes. Angles in Exhibit 155 do appear	17:22:07
11	to be the accurate angles that we designed the Fuji to	17:22:12
12	and -- and started building Fuji to.	17:22:15
13	Q. Earlier you were asked about whether or not	17:22:23
14	Mr. Levandowski had input into the Fuji design.	17:22:30
15	Did Mr. Levandowski have any technical input	17:22:34
16	for the Fuji design?	17:22:36
17	MR. JAFFE: Objection; form, leading.	17:22:38
18	THE WITNESS: To my recollection, the only	17:22:44
19	potentially technical input Anthony Levandowski had on	17:22:49
20	the Fuji design were telling us to make it as good as	17:22:55
21	the Velodyne or better. To under-regard any concerns	17:23:03
22	given to us from people in Pittsburgh regarding size	17:23:06
23	and weight, that that should not be a prioritized	17:23:09
24	requirement.	17:23:10
25	BY MR. KIM:	

Page 221

1 Q. At the very beginning of your deposition you 17:23:19
2 were asked about whether you had communications with 17:23:22
3 Mr. Levandowski while you were at Tyto. 17:23:23

4 Do you remember that? 17:23:26

5 A. Vaguely. 17:23:27

6 Q. When you were asked whether or not he gave 17:23:32
7 you any confidential information, you said you thought 17:23:36
8 it was general information. What did you mean by 17:23:39
9 that? 17:23:40

10 A. I believe information Anthony provided 17:23:50
11 regarding a [REDACTED] was 17:23:57
12 information that I've seen other places on the 17:24:02
13 Internet as white papers, as publicly-available 17:24:07
14 information in terms of architect or configuration for 17:24:11
15 a laser. I felt recommendations for vendors would be 17:24:19
16 information, again, publicly available by doing Google 17:24:23
17 search for components like that. 17:24:26

18 Q. And at the very start of your deposition you 17:24:32
19 were asked about 64 channels and the convenience of 17:24:34
20 two. Do you recall that line of questioning? 17:24:37

21 A. Wasn't it the power of two. 17:24:40

22 Q. Maybe it was the power of two. 17:24:42

23 A. Yeah. 17:24:43

24 Q. What was the reason that Fuji had -- or the 17:24:53
25 Fuji design has 64 channels? 17:24:57

22	Uber was not given leave to file	17:26:34
23	anything. So the time extent that Uber is	17:26:36
24	planning on filing anything or submitting any of	17:26:39
25	that testimony, we are going to move to strike. I	17:26:42

1 want to make that clear on the record before we 17:26:45
2 get going again. 17:26:47

3 FURTHER CROSS-EXAMINATION

4 BY MR. JAFFE:

5 Q. So Mr. Haslim, we talked for a long time 17:26:51
6 earlier today; right? 17:26:52

7 A. Yes. 17:26:52

8 Q. Do you stand by your testimony? 17:26:54

9 A. To the best of my knowledge, yes. 17:26:58

10 Q. Is there anything that you said today that 17:27:00
11 was inaccurate? 17:27:02

12 A. Not aware. 17:27:03

13 Q. So everything that we talked about earlier 17:27:05
14 today, you stand by that testimony as true and 17:27:07
15 accurate; right? 17:27:09

16 MR. KIM: Objection; form. 17:27:11

17 THE WITNESS: To the best of my knowledge, yes. 17:27:14

18 BY MR. JAFFE: 17:27:14

19 Q. Counsel for Uber introduced a term called 17:27:18

20 [REDACTED] 17:27:19

21 Do you remember that? 17:27:20

22 A. Yes. 17:27:20

23 Q. What is your understanding of the 17:27:21
24 relationship between something that [REDACTED]

[REDACTED] 17:27:28

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 A. I would say that something that was 17:27:32

2

17:27:37

4 Q. And so what's your understanding of 17:27:39

5 then? 17:27:41

6 A. In the context of what we've discussed so 17:27:45

7 far, suggests in the context of 17:27:49

8

17:27:57

11 Q. And what's your understanding of 17:27:58

12 again? 17:28:00

13 A. My understanding of monotonically is a set of 17:28:06

14 values, or in the case of a

19 THE REPORTER: Excuse me.

20 THE WITNESS

17:28:34

22 BY MR. JAFFE:

23 Q. If something increases

right? 17:28:39

25 MR. KIM: Objection; form. 17:28:40

Page 225

1 THE WITNESS: I wasn't sure. I don't recall the 17:28:43
2 strict definition of [REDACTED]
[REDACTED] 17:28:52
4 BY MR. JAFFE: 17:28:52
5 Q. I see. So if we exclude zero change, if 17:28:55
6 something is [REDACTED]
[REDACTED]; right? 17:29:01
8 MR. KIM: Objection; form. 17:29:04
9 THE WITNESS: I believe so, yes. 17:29:07
10 BY MR. JAFFE: 17:29:07
11 Q. And if we go back and we look at -- I don't 17:29:12
12 have the number in front of me. It's the one where 17:29:14
13 you pencilled out all the changes. 17:29:16
14 A. The changes. 17:29:18
15 Q. The changes, yeah. 17:29:18
16 A. Let's see, this one; right? 17:29:22
17 Q. Not that one. The one that looks like this 17:29:25
18 (indicating). The Fuji data. 17:29:28
19 A. Is that not the one I wrote for you? 17:29:31
20 Q. Yes. It should be over there in that pile. 17:29:36
21 It's just going to be one sheet of paper. 17:29:40
22 MR. KIM: Thank you. 17:29:42
23 (Witness reviews documents.) 17:29:52
24 THE WITNESS: This one? 17:29:53
25 BY MR. JAFFE: 17:29:53

Page 226

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 Q. That's it. 17:29:54

2 A. Okay. 17:29:55

3 Q. Do you remember when we were talking about 17:29:56

4 the delta Y column? 17:29:58

5 A. Yes. 17:29:58

6 Q. Does the delta Y column -- I guess we'll say, 17:30:03

7 [REDACTED]? 17:30:10

8 MR. KIM: Objection; form. 17:30:14

9 THE WITNESS: Yes, it appears to [REDACTED]

[REDACTED] 17:30:17

11 BY MR. JAFFE: 17:30:17

12 Q. So the difference between [REDACTED]

[REDACTED] is immaterial to what we were talking 17:30:23

14 about in Exhibit 156; right? 17:30:25

15 MR. KIM: Objection; form. 17:30:26

16 THE WITNESS: I can say that the delta Y column 17:30:31

17 appears to be [REDACTED]

[REDACTED] yes. 17:30:35

19 BY MR. JAFFE: 17:30:35

20 Q. You talked about [REDACTED] with your 17:30:38

21 counsel. 17:30:39

22 Do you remember that? 17:30:40

23 A. Yes. 17:30:40

24 Q. And you said that you reuse some of the parts 17:30:42

25 from [REDACTED] in the Fuji design; is that right? 17:30:45

1	A. Yes.	17:30:46
2	Q. Is that common to reuse parts from old	17:30:49
3	projects?	17:30:50
4	MR. KIM: Objection; form.	17:30:53
5	THE WITNESS: Depends what you mean by "common."	17:30:57
6	Can it be done? Certainly. Is it done? I've seen it	17:31:01
7	done, yeah.	17:31:02
8	BY MR. JAFFE:	17:31:02
9	Q. Is it something you've seen happen fairly	17:31:04
10	regularly?	17:31:05
11	MR. KIM: Objection; form.	17:31:06
12	THE WITNESS: Again, I don't want to try to	17:31:09
13	qualify the rate of currents, but I have seen it done	17:31:13
14	before.	17:31:14
15	BY MR. JAFFE:	17:31:14
16	Q. Let me ask it this way: Reusing parts from	17:31:15
17	old projects is not uncommon; right?	17:31:18
18	MR. KIM: Objection; form.	17:31:19
19	THE WITNESS: It's not very uncommon.	17:31:21
20	BY MR. JAFFE:	17:31:21
21	Q. And was [REDACTED] -- how would you describe	17:31:25
22	what happened with that project?	17:31:27
23	A. I would describe it as a LiDAR sensor	17:31:35
24	development that started probably before I joined	17:31:39
25	Otto, made some progress in designing an FAC lens,	17:31:46

1 probably purchasing a couple basic components for it. 17:31:50
2 And then got shelved, I would say, when we decided to 17:31:58
3 go with the Spider design. 17:32:00
4 Q. Would you say that you abandoned the LiDAR 17:32:02
5 zero design? 17:32:04
6 MR. KIM: Objection; form. 17:32:14
7 THE WITNESS: Not exactly, because it's semantics. 17:32:19
8 I'll grant that. 17:32:22
9 But even when we moved away from LiDAR 17:32:27
10 zero, Dan Gruver really wanted to do [REDACTED] 17:32:33
11 which reflects in what we're doing now is Fuji. 17:32:38
12 So we continued to have an employee looking at the 17:32:44
13 machine that would place the FAC lens, even though 17:32:50
14 we're working on Spider. 17:32:52
15 BY MR. JAFFE: 17:32:52
16 Q. And you're talking about Mr. Pennecot? 17:32:54
17 A. No. This was George Lagui. So he was 17:33:03
18 working on this machine. 17:33:04
19 Q. So you didn't really abandoned [REDACTED] 17:33:07
20 then? 17:33:07
21 MR. KIM: Objection; form. 17:33:13
22 THE WITNESS: I'm not sure if I would say we 17:33:15
23 abandoned it or not. Definitely back shelved it. But 17:33:20
24 it seemed like potential valuable capability to have. 17:33:26
25 BY MR. JAFFE: 17:33:26

1 Q. So I want to fast forward and talk about 17:33:31
2 Spider. 17:33:32
3 A. Okay. 17:33:33
4 Q. The Spider device, did you abandon that 17:33:37
5 project in the same way that yo abandoned [REDACTED] 17:33:45
6 MR. KIM: Objection; form. 17:33:46
7 THE WITNESS: No. 17:33:47
8 BY MR. JAFFE: 17:33:47
9 Q. How are they different? 17:33:49
10 A. In the case of what we're calling [REDACTED] 17:33:53
11 we kept an employee working on this machine that could 17:33:56
12 someday be used to place FAC lenses. That project was 17:34:03
13 put on the shelf because what we thought was a more 17:34:07
14 expedient design was selected, not for any fault of 17:34:11
15 that approach. 17:34:12
16 So Spider, I feel like that could probably be 17:34:20
17 fairly said to have been abandoned because it was 17:34:23
18 rejected on its merit or lack thereof. 17:34:27
19 Q. You use some of the learnings from the Spider 17:34:30
20 design in Fuji? You agree with that; right? 17:34:33
21 MR. KIM: Objection; form. 17:34:34
22 THE WITNESS: Like what? 17:34:35
23 BY MR. JAFFE:
24 Q. I'm asking you. 17:34:37
25 MR. KIM: Objection; form. 17:34:43

1 THE WITNESS: I got to think this through. 17:34:45

2 We've got different laser source, different 17:34:49

3 detector, different physical arrangement, 17:34:52

4 different lens arrangement, completely different 17:34:58

5 motor, perhaps in a noncontact power transfer 17:35:08

6 design work, that could have been leveraged from 17:35:12

7 Spider into Fuji. 17:35:14

8 BY MR. JAFFE: 17:35:14

9 Q. In fact, Spider was de cribed as [REDACTED]; right? 17:35:17

10 A. Yes.

11 Q. And Fuji was described as [REDACTED] right? 17:35:20

12 A. Yes. 17:35:22

13 Q. And [REDACTED] 17:35:27

14 MR. KIM: Objection; form. 17:35:27

15 THE WITNESS: I call them [REDACTED] with that in 17:35:31

16 mind. 17:35:32

17 BY MR. JAFFE: 17:35:32

18 Q. Wouldn't you agree that you reused some of 17:35:35

19 the receptor designs that you had for Spider in Fuji? 17:35:41

20 MR. KIM: Objection; form. 17:35:43

21 THE WITNESS: No. 17:35:44

22 BY MR. JAFFE: 17:35:44

23 Q. You didn't consider reusing any of the 17:35:46

24 receptor, the APDs in Spider from Fuji? 17:35:54

25 THE REPORTER: In Spider from Fuji. 17:35:54

1 THE WITNESS: No. 17:35:55

2 BY MR. JAFFE:

3 Q. So Spider, you're never going to use it 17:36:02

4 again; right? 17:36:03

5 A. I don't have any intention of reusing it 17:36:05

6 again right now. 17:36:06

7 Q. That's not my question. My question is, Uber 17:36:09

8 is never going to use Spider; right? 17:36:12

9 A. You're asking if the company is going to do 17:36:18

10 something in the future? 17:36:20

11 Q. That's right. 17:36:20

12 A. I don't know. 17:36:21

13 Q. So sitting here today, you can't tell me 17:36:24

14 whether Uber is going to use Spider in the future? 17:36:27

15 A. No. I can only tell you my intentions right 17:36:31

16 now. 17:36:31

17 Q. All right. You mentioned Fuji. Oh, I'm 17:36:47

18 sorry, going back to Spider. 17:36:50

19 Why save the parts if you're never going to 17:36:53

20 use it? 17:36:54

21 A. That's a good question. 17:36:57

22 Q. Why didn't you throw it away? 17:37:00

23 A. I don't know if we've thrown anything away. 17:37:03

24 I don't know. It should have, could have easily been 17:37:05

25 recycled, yeah. 17:37:07

Page 232

1 Q. So you don't know why you kept it? 17:37:10

2 A. Just because we didn't throw it away, as far 17:37:13

3 as I know. 17:37:14

4 Q. So sitting here today, again, you can't tell 17:37:19

5 me why you kept the Spider; right? 17:37:21

6 A. Yes. 17:37:26

7 Q. Okay. I want to ask about your supplemental 17:37:42

8 declaration that you went into detail with with your 17:37:46

9 counsel. And let's start with page 11. And there's 17:38:07

10 Figures 8A and 8B here. 17:38:09

11 Do you see that? 17:38:10

12 A. I see that. 17:38:11

13 Q. And during your testimony by your counsel, 17:38:13

14 you said -- you referred to these [REDACTED] and you 17:38:17

15 said whoever did these letters. 17:38:21

16 A. Um-hum.

17 Q. You didn't prepare 8A and 8B, did you? 17:38:28

18 A. No. 17:38:28

19 Q. Who prepared 8A and 8B? 17:38:31

20 A. Counsel. 17:38:33

21 Q. Who? 17:38:34

22 A. Jackie Choy [sic], I believe. 17:38:39

23 Q. So Uber's lawyers prepared this and sent this 17:38:43

24 to you; is that right? 17:38:44

25 A. Yes. 17:38:45

Page 233

1 Q. And you signed it without actually checking 17:38:47
2 it was accurate? 17:38:49
3 A. Whoa. I looked at these numbers. 17:38:52
4 Q. But you didn't check what you did today 17:38:54
5 before you signed this declaration, did you? 17:38:59
6 A. What do you mean? Identifying, double 17:39:02
7 checking the [REDACTED] 17:39:04
8 Q. Yes. 17:39:04
9 A. I did check that. 17:39:06
10 Q. So why today did you need to check it again? 17:39:09
11 A. I like to be careful. 17:39:11
12 Q. You like to be careful? 17:39:12
13 A. Yeah. I want to be sure we can show the [REDACTED]
[REDACTED] that they matched. 17:39:19
15 Q. Did you know when you signed your declaration 17:39:22
16 whether these actually matched every single angle and 17:39:26
17 every single board? 17:39:27
18 A. Yes, I believe I did. 17:39:28
19 Q. What do you mean you believe you did? 17:39:31
20 A. To my recollection, I checked [REDACTED]
[REDACTED]. And I checked the 17:39:42
22 initial [REDACTED] and knew that they would follow the 17:39:46
23 same pattern so I didn't check every single angle. 17:39:50
24 Q. How many of these did you actually check 17:39:52
25 yourself before you signed your declaration? 17:39:55

1 A. I remember at least checking the initial [REDACTED]
[REDACTED] 17:40:04

3 Q. So you checked about six out of the 64; is 17:40:08
4 that fair? 17:40:09

5 A. Yeah. 17:40:09

6 Q. And the rest are purely from counsel; you're 17:40:12
7 just relying on them? 17:40:14

8 A. Not exactly. 17:40:16

9 Q. You didn't check. 17:40:19
10 How did you know it was accurate? 17:40:21

11 A. How would the pattern change? 17:40:24

12 Q. I don't know. It's your declaration. 17:40:26

13 A. I understand. From my understanding, the 17:40:30
14 pattern is consistent in the letters. So once you 17:40:35
15 start the pattern properly, it's going to finish out 17:40:39
16 properly. 17:40:40

17 Q. Let's go to the next page, page 12. 17:40:42
18 Who prepared this table? 17:40:44

19 A. Counsel for Uber. 17:40:51

20 Q. And you had to double check it here at your 17:40:54
21 deposition; you didn't know whether it was accurate 17:40:55
22 when you signed it, did you? 17:40:57

23 MR. KIM: Objection; form. 17:40:58

24 THE WITNESS: I believe I checked that before as 17:41:00
25 well. 17:41:01

Page 235

1 BY MR. JAFFE: 17:41:01

2 Q. You did? How many? 17:41:03

3 A. I don't recall. Some. 17:41:14

4 Q. How many? 17:41:16

5 A. I would have checked first sets of angles. I 17:41:25

6 don't know. 17:41:25

7 Q. I'm not asking what you would have done. I'm 17:41:28

8 asking what you did. 17:41:29

9 A. I don't remember what I did. 17:41:30

10 Q. You don't remember checking any of these, do 17:41:33

11 you? 17:41:33

12 MR. KIM: Objection; form. 17:41:34

13 THE WITNESS: That's not true. 17:41:35

14 BY MR. JAFFE: 17:41:35

15 Q. So you checked one? 17:41:36

16 MR. KIM: Objection; form. 17:41:38

17 THE WITNESS: I specifically was checking those 17:41:40

18 that had the [REDACTED] degree, and I was specifically 17:41:44

19 checking those that began the pattern as well. 17:41:47

20 BY MR. JAFFE: 17:41:47

21 Q. So you checked probably, what, five or six? 17:41:50

22 A. Should be at least six, was at least six. 17:41:54

23 Q. At least six. You don't remember checking 17:41:56

24 anymore on this one? 17:41:59

25 A. I don't remember checking more. 17:42:00

1 Q. Let's go to the next page. There's another 17:42:03
2 chart, page 13. 17:42:04
3 Who wrote this chart? 17:42:06
4 A. Same person who prepared the previous chart. 17:42:10
5 Q. And how many angles did you check in this 17:42:14
6 one? 17:42:15
7 A. Again, I would -- I believe I checked maybe 17:42:20
8 six. 17:42:20
9 Q. And how did you know that the data that 17:42:23
10 Uber's lawyers were relying on was accurate? 17:42:27
11 A. I would say there's a certain level of 17:42:40
12 expectation of accuracy when you're pulling data out 17:42:45
13 of a spreadsheet into another spreadsheet. 17:42:47
14 Q. You mean you were relying on Uber's lawyers 17:42:50
15 to give you accurate data? 17:42:52
16 MR. KIM: Objection; form. 17:42:53
17 THE WITNESS: I was relying on Uber's lawyers to 17:42:58
18 do the obvious simple thing, cut and paste from a 17:43:01
19 spreadsheet, and not inject an errors by manually 17:43:05
20 changing numbers. 17:43:07
21 BY MR. JAFFE: 17:43:07
22 Q. You see it says "Current" here? 17:43:09
23 A. Yes. 17:43:09
24 Q. Where did Uber's lawyers get the numbers that 17:43:13
25 go in the "Current" column? 17:43:15

Page 238

1 column come from in your declaration? 17:44:51

2 A. They came from the spreadsheet that we're 17:44:59

3 printing out and calling Exhibit 155. 17:45:02

4 Q. And how do you know that? How did you know 17:45:05

5 that at the time? 17:45:05

6 A. How did I know to look there as a source? 17:45:09

7 Q. No. How did you know that the source of 17:45:11

8 these numbers were from that spreadsheet before you 17:45:14

9 signed your declaration? 17:45:16

10 A. So in the process of developing this 17:45:20

11 document, I was in communication with Uber's counsel. 17:45:24

12 Q. So Uber's lawyers told you that these numbers 17:45:29

13 come from the "Current" number and they sent them to 17:45:32

14 you and that's the basis of your understanding that 17:45:34

15 these numbers actually are current? 17:45:36

16 MR. KIM: I'm going to object on the grounds of 17:45:39

17 privilege and instruct you not to answer the question 17:45:42

18 to the extent it asks what Uber's lawyers told you. 17:45:48

19 THE WITNESS: I would refer to my discussion with 17:45:50

20 Uber's lawyer for the source of the information that 17:45:55

21 allows me to go back and check myself at least some of 17:45:59

22 the numbers with the belief that the other numbers in 17:46:02

23 between for every logical reason should be the correct 17:46:06

24 numbers. 17:46:07

25 BY MR. JAFFE: 17:46:07

1 Q. But you didn't check that before you signed 17:46:09
2 your declaration; right? 17:46:11
3 MR. KIM: Objection; form. 17:46:12
4 THE WITNESS: I did not recall checking all 32 17:46:20
5 angles in this table, or 64 as the case may be. 17:46:24
6 BY MR. JAFFE: 17:46:24
7 Q. So you couldn't -- at the time you signed 17:46:28
8 this declaration, you couldn't say that what's in here 17:46:35
9 actually does represent all the current angles because 17:46:39
10 you didn't check each one? 17:46:41
11 MR. KIM: Objection; form. 17:46:42
12 THE WITNESS: I really believe without checking 17:46:44
13 every single one, I could have a very high reasonable 17:46:48
14 confidence that they are correct. 17:46:50
15 BY MR. JAFFE: 17:46:50
16 Q. Because you believe Uber's lawyers? 17:46:52
17 MR. KIM: Objection; form. 17:46:55
18 THE WITNESS: Because I checked the beginning and 17:46:57
19 the end and have every reason to believe that a cut 17:47:02
20 and paste from one spreadsheet to another would be 17:47:05
21 without error. 17:47:05
22 BY MR. JAFFE: 17:47:05
23 Q. But what spreadsheet did it come from? 17:47:09
24 A. The spreadsheet that's printed out in Exhibit 17:47:13
25 155. 17:47:13

1 Q. How do you know that? 17:47:14

2 A. By talking to the lawyer. 17:47:16

3 Q. So Uber's lawyer told you that he or she cut 17:47:20

4 and paste out of a spreadsheet and put it into this 17:47:23

5 chart? 17:47:23

6 MR. KIM: Objection; calls for privileged 17:47:26

7 information. Instruct you not to answer to the extent 17:47:29

8 it's asking you what Uber's lawyers told you. 17:47:31

9 MR. JAFFE: This is waived. 17:47:33

10 I mean, the only basis for him to say that this is 17:47:35

11 current is what a lawyer told him, so that's not a 17:47:39

12 proper privilege instruction. 17:47:40

13 MR. KIM: He's already told you that it's based on 17:47:42

14 communications with his lawyers. You're not entitled 17:47:45

15 to know exactly what his lawyers told him. 17:47:47

16 MR. JAFFE: I'm entitled to know exactly that. 17:47:49

17 MR. KIM: Disagree. 17:47:50

18 BY MR. JAFFE: 17:47:50

19 Q. Mr. Haslim, what did Uber's lawyers tell you 17:47:56

20 was the source of the data in the "Current" column? 17:47:59

21 MR. KIM: Same objection with instruction not to 17:48:01

22 answer. 17:48:02

23 You can answer that question generally if 17:48:08

24 you can without revealing the exact -- the 17:48:12

25 specific communications that you've had with the 17:48:14

1 lawyer. But I think you've already done that. 17:48:17

2 Can you rephrase the question to avoid asking 17:48:24

3 with him what Uber's lawyers told him? 17:48:26

4 BY MR. JAFFE: 17:48:26

5 Q. I'm asking him, what is the basis for his 17:48:30

6 knowledge, to the extent that he has any, about where 17:48:33

7 the data in the "Current" column in your declaration 17:48:36

8 came from? 17:48:38

9 A. I'll have to say my knowledge of where the 17:48:42

10 data in the "Current" column came from would come from 17:48:47

11 inspecting where I believed it came from and finding a 17:48:51

12 reasonable match from some number of channels that 17:48:55

13 begin the pattern and end the pattern. 17:48:57

14 Q. How did you know to look in that document? 17:49:01

15 A. Discussion with counsel. 17:49:05

16 Q. Okay. So let me start again. What was your 17:49:07

17 basis for understanding that what's in the "Current" 17:49:10

18 column actually reflects anything in Fuji? 17:49:13

19 A. Again, my basis for understanding what was 17:49:18

20 reflected in the "Current" column reflects what was 17:49:21

21 actually built in Fuji was to compare some subset of 17:49:26

22 the numbers at least to the angles in a document that 17:49:29

23 I know was used to build Fuji. 17:49:33

24 Q. So again, for the chart on page 13 here, you 17:49:37

25 didn't prepare that chart; right? 17:49:39

1 MR. KIM: Objection; form. 17:49:42

2 THE WITNESS: I did not prepare this spreadsheet 17:49:44

3 chart.

4 BY MR. JAFFE: 17:49:45

5 Q. It came to you fully formed with the current

6 column and the November 16th column already populated;

7 right?

8 A. Yes. 17:49:52

9 Q. And you only checked a couple of the angles; 17:49:55

10 right? 17:49:55

11 A. I checked more than a couple, but I checked a 17:50:00

12 subset of the angles. 17:50:01

13 Q. And what about the November 16th one, how 17:50:04

14 many of those did you check? 17:50:05

15 A. I would have -- I don't remember exactly how 17:50:09

16 many I checked. 17:50:09

17 Q. Do you remember checking any? 17:50:11

18 A. Yes. 17:50:12

19 Q. More than one? 17:50:15

20 A. Yeah. It would have been more than one, but 17:50:17

21 I don't remember exactly how many. 17:50:19

22 Q. What else in your declaration did you rely on 17:50:23

23 representations from counsel about? 17:50:25

24 A. Annotations in Figure 2B. 17:50:45

25 Q. That's relied on by counsel? 17:50:48

1 A. Counsel created the annotations. I looked at 17:50:52
2 it, thought it looked correct. 17:50:55
3 Q. What about -- let's go to page 4. 17:51:02
4 A. Okay. 17:51:03
5 Q. Do you see there's some large footnotes 17:51:06
6 there? 17:51:07
7 A. Yes. 17:51:07
8 Q. Who provided those references? 17:51:09
9 A. I did. 17:51:10
10 Q. And where did you find them? 17:51:12
11 A. On the web. 17:51:13
12 Q. So you went out and found each of those? 17:51:16
13 A. Yes. 17:51:16
14 Q. And the iXBlue one that you're referring to? 17:51:20
15 A. IXBlue, yes.
16 Q. IXBlue, excuse me. 17:51:23
17 Do you know when that specialty fiber web 17:51:27
18 page first was published? 17:51:29
19 A. No. 17:51:29
20 Q. Do you know if it was published before or 17:51:31
21 after you started designing [REDACTED]
[REDACTED] ? 17:51:39
23 A. I don't know. 17:51:40
24 Q. Again on page 5 looking at Figure 4, do you 17:51:43
25 know whether that website was posted before or after 17:51:46

1 the conversation with Mr. Levandowski? 17:51:47

2 A. I don't know. 17:51:48

3 Q. Is there anything else in the declaration in 17:51:54

4 which you're relying on representations from Uber's 17:51:59

5 lawyers? 17:51:59

6 MR. KIM: Objection; form. 17:52:01

7 THE WITNESS: Figure 6, I relied on Uber's lawyers 17:52:06

8 to excerpt this section from the spreadsheet. 17:52:09

9 Figure 7A and 7B, I relied on Uber lawyer to put 17:52:20

10 down these files that were sourced by somebody 17:52:23

11 else. 17:52:24

12 BY MR. JAFFE: 17:52:24

13 Q. Who were they sourced by? 17:52:26

14 A. I'm fairly certainly they would be sourced by 17:52:29

15 Gaetan. 17:52:29

16 Q. So Gaetan provided these pictures? 17:52:31

17 A. I believe so, yes. 17:52:32

18 Q. Did you talk to Gaetan about what you wanted 17:52:34

19 to provide, what you wanted him to put in here? 17:52:37

20 MR. KIM: Objection; form. 17:52:39

21 THE WITNESS: No. 17:52:39

22 BY MR. JAFFE: 17:52:39

23 Q. What was your understanding of what 17:52:41

24 Mr. Pennecot went out and looked for? 17:52:44

25 A. My understanding was these were documents 17:52:52

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 that were already produced and were gathered for the 17:52:55
2 purpose of this declaration. 17:52:57

3 Q. And it refers to [REDACTED] 17:53:02
4 [REDACTED] 17:53:03

5 A. Yes. 17:53:03

6 Q. Has the FAC lens in Fuji always been 17:53:12
7 [REDACTED] 17:53:14

8 THE REPORTER: I'm sorry, can you repeat that? 17:53:14
9 BY MR. JAFFE:

10 Q. Has the FAC lens in Fuji always been
11 [REDACTED]

12 A. I've only known it to be [REDACTED] 17:53:19

13 Q. So you've never seen a version of a FAC lens 17:53:23
14 that is [REDACTED] 17:53:24

15 A. No, not to my knowledge. 17:53:26

16 Q. And would it surprise you if Uber -- go 17:53:29
17 ahead. 17:53:29

18 A. You left the question very general and I 17:53:32
19 answered too quickly. I've never seen [REDACTED]
20 [REDACTED] 17:53:41

21 Q. What other design have you seen? 17:53:47
22 A. [REDACTED]
23 [REDACTED] 17:53:54

24 Q. In terms of the custom FAC lens that includes 17:53:57
25 a cylindrical optical surface, have you ever seen one 17:54:01

Page 246

1 of those? 17:54:02

2 MR. KIM: Objection; form. 17:54:03

3 THE WITNESS: Are you asking about anywhere? 17:54:05

4 BY MR. JAFFE: 17:54:05

5 Q. At Uber or Otto. 17:54:07

6 A. If -- I don't know of seeing a cylindrical 17:54:12

7 custom FAC lens at Otto. 17:54:14

8 Q. And you don't know whether Fuji ever had a 17:54:19

9 cylindrical FAC lens ever? 17:54:22

10 A. To my knowledge, [REDACTED]

11 [REDACTED]

12 [REDACTED] 17:54:32

13 Q. What about [REDACTED], are you familiar 17:54:34

14 with that? 17:54:35

15 A. I've seen the name [REDACTED] 17:54:38

16 Q. What is that? 17:54:39

17 A. I believe it's the FAC lens. 17:54:41

18 Q. And do you know whether there are any 17:54:43

19 versions of that design that had a cylindrical optical 17:54:46

20 surface? 17:54:47

21 A. I'm not aware. If there were, I'm not aware 17:54:50

22 of them. So we have to go back to Gaetan's design 17:54:52

23 record to see if he started with a cylindrical design. 17:54:57

24 Q. So we talked about some of the charts where 17:55:00

25 you said that you relied on Uber's counsel. 17:55:04

1 What about any of the text? Are any of the 17:55:05
2 numbers in here, do they come from Uber's counsel as 17:55:09
3 opposed to you? 17:55:10
4 A. A large part of the text, perhaps the bulk of 17:55:17
5 the text in this declaration, came from Uber's 17:55:20
6 counselors. 17:55:20
7 Q. Okay. So they provided you basically all the 17:55:24
8 text in this draft; is that fair? 17:55:26
9 MR. KIM: Objection; form. 17:55:28
10 THE WITNESS: It's a little too much to say "all," 17:55:30
11 but I could say more than half and that I was given an 17:55:33
12 opportunity to edit. 17:55:37
13 BY MR. JAFFE: 17:55:37
14 Q. Okay. So I want to go back to my original 17:55:43
15 question which was, what part of the text are you 17:55:47
16 relying on representations from Uber's lawyers for 17:55:50
17 purposes of your declaration? 17:55:52
18 A. Since Uber's lawyers originated most of the 17:56:13
19 text, I relied on Uber's lawyers to originate most of 17:56:18
20 the text in here. 17:56:19
21 Q. Meaning, most of the text you're relying on 17:56:26
22 on their representations; is that fair? 17:56:29
23 A. I'm relaying on their -- 17:56:30
24 MR. KIM: Objection; form. 17:56:31
25 THE REPORTER: I'm relaying on their . . .

1 THE WITNESS: I'm relying on their origination. 17:56:37
2 BY MR. JAFFE: 17:56:37
3 Q. So for example, looking at page 13, there's a 17:56:43
4 chart comparing Spider and Fuji. Uber's lawyer came 17:56:49
5 up with that chart; right? 17:56:51
6 MR. KIM: Objection; form. 17:56:52
7 THE WITNESS: Yes. 17:56:53
8 BY MR. JAFFE: 17:56:53
9 Q. The idea -- going back to page 8, the idea of 17:57:09
10 excerpting what's in Figure 6, was that -- did that 17:57:14
11 idea come from Uber's lawyers? 17:57:17
12 MR. KIM: Objection; form. Also on grounds of 17:57:20
13 work product. 17:57:25
14 THE WITNESS: I presume it was. 17:57:30
15 BY MR. JAFFE: 17:57:30
16 Q. And going back to -- 17:57:42
17 MR. KIM: How long have we been going on the 17:57:57
18 record? 17:57:58
19 THE VIDEOGRAPHER: The entire time? 17:57:59
20 MR. KIM: Yes. Oh, just since the last break. 17:58:05
21 THE VIDEOGRAPHER: 54 minutes. 17:58:07
22 MR. JAFFE: I'm referring to your original 17:58:32
23 declaration. Let's go to your original declaration, 17:58:32
24 please.
25 MR. KIM: I'm going to object to this whole line 17:58:34

Page 249

1 of questioning as outside the scope of recross. 17:58:39

2 BY MR. JAFFE: 17:58:39

3 Q. Did Uber's lawyers, did they prepare your 17:58:42

4 original declaration as well? 17:58:44

5 MR. KIM: Objection; form. 17:58:45

6 THE WITNESS: I would say Uber's lawyers 17:58:54

7 originated most of this declaration. 17:58:58

8 BY MR. JAFFE: 17:58:58

9 Q. What percentage of the words in your original 17:59:00

10 declaration came from Uber's lawyers? 17:59:03

11 MR. KIM: Objection; form. 17:59:07

12 THE WITNESS: I don't know what the percentage is. 17:59:08

13 BY MR. JAFFE: 17:59:08

14 Q. Over 80 percent? 17:59:10

15 MR. KIM: Objection; form, outside the scope. 17:59:14

16 THE WITNESS: Yeah, I'm not sure. 17:59:18

17 I know I had some textural editing input to this 17:59:25

18 document, but I don't remember like percentagewise 17:59:26

19 on the words. It was less than half. 17:59:31

20 BY MR. JAFFE: 17:59:31

21 Q. But in terms of the drafting, they sent you a 17:59:34

22 full draft of your declaration? 17:59:36

23 MR. KIM: Objection; form. 17:59:38

24 BY MR. JAFFE: 17:59:38

25 Q. Is that right? 17:59:39

Page 250

1 A. Yes, I got -- 17:59:44

2 MR. KIM: Outside the scope of redirect. Recross. 17:59:47

3 THE WITNESS: Yes. I got a more or less complete 17:59:51

4 draft from Uber's lawyers. 17:59:54

5 BY MR. JAFFE: 17:59:54

6 Q. And I want to take you particularly to page 17:59:56

7 12 of your original declaration. 18:00:00

8 A. Okay. 18:00:03

9 Q. Do you see where you refer to 18:00:06

10 Mr. Levandowski's input? 18:00:08

11 A. Yes. 18:00:16

12 Q. What did you do -- well, let me start this, 18:00:19

13 was this paragraph drafted by Uber's lawyers? 18:00:22

14 MR. KIM: Objection; form outside the scope. 18:00:26

15 THE WITNESS: I believe they wrote the first draft 18:00:32

16 of this. 18:00:33

17 BY MR. JAFFE: 18:00:33

18 Q. And what did you do to verify before signing 18:00:38

19 your declaration that what's here in paragraph 19 and 18:00:43

20 written by Uber's lawyers was true and accurate based 18:00:46

21 on your personal knowledge? 18:00:48

22 A. I used my personal knowledge, my personal 18:00:55

23 experience, my recollection, read this, agreed. To my 18:01:02

24 knowledge, to the best of my knowledge, that the 18:01:04

25 statement in paragraph 19 was true. 18:01:06

Page 251

1 Q. So Uber's lawyers sent you paragraph 19. You 18:01:09
2 said looks good and you signed it? 18:01:11
3 MR. KIM: Objection; form. 18:01:12
4 THE WITNESS: They sent me 19. I may have made an 18:01:15
5 edit in it. I don't recall. And then gave that edit 18:01:21
6 back. Got a final draft, read through, and signed it. 18:01:25
7 BY MR. JAFFE: 18:01:25
8 Q. What was the edit you gave to paragraph 19 to 18:01:27
9 make it accurate? 18:01:28
10 MR. KIM: Objection; form. 18:01:35
11 THE WITNESS: I may have suggested that we make a 18:01:39
12 strong statement as possible regarding the 14,000 18:01:44
13 files having not seen any evidence of that in the 18:01:48
14 development of this sensor. 18:01:49
15 BY MR. JAFFE: 18:01:49
16 Q. Anything else? 18:01:51
17 A. I don't recall. 18:01:55
18 Q. So for purposes of the first sentence here 18:01:59
19 about Mr. Levandowski never had nor currently has any 18:02:03
20 design input, that was written wholesale by Uber's 18:02:08
21 lawyers? 18:02:08
22 MR. KIM: Objection; form. 18:02:10
23 THE WITNESS: I don't recall if I may have -- if I 18:02:13
24 had made any edits to this first sentence or not. 18:02:16
25 BY MR. JAFFE: 18:02:16

Page 252

1 Q. And what did you do to verify -- well, 18:02:19
2 actually I think you already said this. 18:02:21
3 You didn't do anything to verify that this 18:02:24
4 statement was accurate in paragraph 19 of your 18:02:27
5 declaration after it was provided to you by Uber's 18:02:30
6 lawyers; right? 18:02:31
7 MR. KIM: Objection; form. 18:02:37
8 THE WITNESS: I did no investigation to verify 18:02:40
9 that the statements made in paragraph 19 were 18:02:46
10 absolutely true. 18:02:49
11 BY MR. JAFFE: 18:02:49
12 Q. Did you talk to Mr. Levandowski? 18:02:52
13 A. No. 18:02:52
14 Q. Okay. All right. So what parts of your 18:03:03
15 original declaration are you relying on information 18:03:08
16 from Uber's lawyers? 18:03:11
17 A. Can you be specific when you say relying on 18:03:21
18 the Uber's lawyers. 18:03:25
19 Q. The basis for it being in your declaration is 18:03:28
20 something provided to you by counsel. 18:03:32
21 MR. KIM: Objection; form. 18:03:35
22 THE WITNESS: Again, this document was, in the 18:03:41
23 majority, sourced by lawyers for Uber. 18:03:47
24 BY MR. JAFFE: 18:03:47
25 Q. So you would say the majority of the document 18:03:49

Page 253

1 you're relying on information from counsel; is that 18:03:51
2 right? 18:03:52
3 A. For the majority of the document, I'm relying 18:03:58
4 on Uber's counsel to originate the document. I'm not 18:04:01
5 necessarily relying on them. If you're implying -- 18:04:04
6 Q. Let me -- 18:04:04
7 MR. KIM: Let him finish. 18:04:06
8 BY MR. JAFFE: 18:04:06
9 Q. That's fine. Let me be more clear. 18:04:10
10 MR. KIM: Wait. Are you cutting off the witness 18:04:11
11 here? 18:04:12
12 MR. JAFFE: I think I'm trying to clarify. I'll 18:04:16
13 withdraw the prior question. 18:04:18
14 BY MR. JAFFE:
15 Q. I want to understand what facts are in your 18:04:20
16 declaration that you relied on from counsel. 18:04:24
17 A. I'm still having a hard time understanding 18:04:27
18 when you say relying on counsel for facts, whether 18:04:31
19 you're implying I'm relying on Uber's counsel for the 18:04:35
20 veracity or whether I'm relying on Uber's counsel to 18:04:39
21 put that information into the declaration. 18:04:41
22 Q. That's fair. Let me help clarify this. 18:04:43
23 So what I'm trying to get at is, were you 18:04:48
24 relying on Uber's counsel for the basis of these 18:04:51
25 facts, that is, you don't have independent personal 18:04:52

Page 254

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 knowledge of how they got into your declaration? 18:04:55

2 A. You said independent personal knowledge of 18:05:01

3 how they got into my -- 18:05:04

4 Q. Let me clarify again. Let me give an example 18:05:05

5 and maybe that will help. 18:05:07

6 So you said in paragraph 22 of your 18:05:10

7 declaration, "Uber will not be ready to deploy any 18:05:13

8 public vehicles with Fuji sensors for self-driving 18:05:16

9 purposes [REDACTED] [REDACTED]

10 [REDACTED] 18:05:21

11 Do you see that? 18:05:22

12 A. I see that. 18:05:23

13 Q. Here's what I'm trying to get at: There's 18:05:25

14 two scenarios, one is you know that based on your work 18:05:30

15 and it's in your declaration. Two is, you don't know 18:05:34

16 that fact or you're not sure about that fact and would 18:05:38

17 need to verify it and Uber's lawyers tell it to you 18:05:43

18 and you put in your declaration anyway and the basis 18:05:45

19 of your declaration is them telling it to you. I'm 18:05:48

20 getting at the latter point. 18:05:50

21 A. Is there maybe a third option? 18:05:51

22 Q. Perhaps there is. Feel free to clarify. 18:05:54

23 A. Maybe option 3 they ask: [REDACTED] [REDACTED]

24 [REDACTED] [REDACTED]

25 [REDACTED] 18:06:04

Page 255

1 Q. I see, okay. 18:06:07

2 A. I answer and then that comes into the 18:06:10

3 paragraph. 18:06:10

4 Q. I see. So you have personal knowledge as to, 18:06:14

5 for example, you have personal knowledge th t the [REDACTED] [REDACTED]

6 [REDACTED] is that fair? 18:06:22

7 A. That's fair. 18:06:23

8 Q. And the basis for that, what's in your 18:06:26

9 declaration is your personal knowledge? 18:06:28

10 A. Yes. 18:06:28

11 Q. Has the time line for Fuji changed since you 18:06:35

12 provided your original declaration? 18:06:36

13 A. I wouldn't say that the time line for Fuji 18:06:47

14 has changed significantly since this declaration. 18:06:50

15 That said, in all fairness, every engineering project 18:06:53

16 has time line change continually. So as time has 18:06:57

17 elapsed, it it's probably slipped a bit. 18:07:01

18 Q. What's the current target date to be able to 18:07:03

19 use Fuji on a car? 18:07:06

20 MR. KIM: Objection; form. 18:07:07

21 THE WITNESS: [REDACTED] [REDACTED]

22 [REDACTED] 18:07:10

23 BY MR. JAFFE: 18:07:10

24 Q. [REDACTED] 18:07:12

25 MR. KIM: Same objection. 18:07:14

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 THE WITNESS: [REDACTED] 18:07:16

2 [REDACTED] 18:07:18

3 BY MR. JAFFE: 18:07:18

4 Q. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 18:08:08

15 MR. KIM: Objection; form. 18:08:09

16 THE WITNESS: [REDACTED] 18:08:16

17 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 18:08:39

23 BY MR. JAFFE: 18:08:39

24 Q. [REDACTED]

[REDACTED] 18:08:44

Page 257

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. KIM: Objection; form. 18:08:45

2 THE WITNESS: [REDACTED] 18:08:47

3 BY MR. JAFFE: 18:08:47

4 Q. [REDACTED] 18:08:49

5 MR. KIM: Objection; form. 18:08:50

6 THE WITNESS: [REDACTED] 18:08:57

7 [REDACTED]

8 [REDACTED]

9 [REDACTED] 18:09:08

10 BY MR. JAFFE: 18:09:08

11 [REDACTED]

12 [REDACTED]

13 [REDACTED] 18:09:19

14 MR. KIM: Objection; form. 18:09:20

15 THE WITNESS: [REDACTED] 18:09:24

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED] 18:09:45

21 BY MR. JAFFE: 18:09:45

22 Q. So I hear you're being very careful with your 18:09:48

23 answers here. 18:09:48

24 My question is, when is Fuji going to be a 18:09:51

25 functioning LiDAR? 18:09:52

Page 258

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. KIM: Objection; form. 18:09:53

2 THE WITNESS: [REDACTED] 18:09:55

3 [REDACTED] 18:09:57

4 BY MR. JAFFE: 18:09:57

5 Q. [REDACTED]

6 [REDACTED] 18:10:05

7 MR. KIM: Objection; form. 18:10:06

8 THE WITNESS: [REDACTED] 18:10:13

9 [REDACTED]

10 [REDACTED] 18:10:24

11 BY MR. JAFFE: 18:10:24

12 [REDACTED]

13 [REDACTED]

14 [REDACTED] 18:10:33

15 MR. KIM: Objection; form. 18:10:33

16 THE WITNESS: [REDACTED] 18:10:35

17 [REDACTED] 18:10:38

18 BY MR. JAFFE: 18:10:38

19 Q. You're answering a different question. 18:10:41

20 That's fine. I'm just trying to get a different 18:10:44

21 question, which is, when is Fuji going to work? 18:10:47

22 MR. KIM: Objection; form. 18:10:49

23 THE WITNESS: [REDACTED] 18:10:50

24 BY MR. JAFFE: 18:10:50

25 [REDACTED] 18:10:54

Page 259

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 MR. KIM: Objection; form. 18:10:55

2 THE WITNESS: Second, I want us to be clear on 18:10:59

3 what you mean by "work." Because I can build a 18:11:02

4 prototype that displays most of the functionality and 18:11:06

5 still not be something you can put on a car. So if 18:11:11

6 you want to clarify. 18:11:14

7 BY MR. JAFFE: 18:11:14

8 Q. Let me just try and ask this one more time. 18:11:17

9 When is Fuji going to be a working LiDAR? 18:11:20

10 MR. KIM: Objection; form. 18:11:24

11 THE WITNESS: [REDACTED] 18:11:31

12 [REDACTED]

[REDACTED]

[REDACTED] 18:11:44

15 BY MR. JAFFE: 18:11:44

16 [REDACTED]

[REDACTED]

[REDACTED] 18:11:54

19 MR. KIM: Objection; form. 18:11:55

20 THE WITNESS: I'm not sure. 18:11:59

21 BY MR. JAFFE: 18:11:59

22 [REDACTED]

[REDACTED] 18:12:09

24 MR. KIM: Objection; form. 18:12:13

25 THE WITNESS: [REDACTED] 18:12:16

Page 260

1 [REDACTED] 18:12:20

2 [REDACTED] 18:12:20

3 BY MR. JAFFE:

4 Q. Okay. Going back to your declaration here, 18:12:25

5 we're looking at paragraph 18. 18:12:26

6 MR. KIM: Jordan, how long do you plan on going? 18:12:30

7 It's about 6:10. Been going over an hour since the 18:12:34

8 last break. 18:12:35

9 MR. JAFFE: Just kind of keep going. 18:12:37

10 MR. KIM: Yeah, well -- I think we should take a 18:12:40

11 break. 18:12:40

12 MR. JAFFE: Why don't we do this quick question 18:12:44

13 and then we'll take a break. 18:12:45

14 BY MR. JAFFE:

15 Q. Are you looking at paragraph 18 of your 18:12:47

16 original declaration? 18:12:49

17 A. Yes. 18:12:51

18 Q. So you referred to this in the redirect 18:12:55

19 testimony. You talked about the custom beam spacing 18:12:58

20 and angle summary Scott provided. 18:13:01

21 Do you see that? 18:13:02

22 A. Yes. 18:13:02

23 Q. So at the bottom of the page -- and this is 18:13:07

24 what we talked about earlier today, you said my team 18:13:10

25 imported the data. 18:13:11

1 Do you see that? 18:13:12

2 A. Yes. 18:13:12

3 Q. And based on what you talked about with 18:13:14

4 Mr. Kim, Uber's lawyer, it was Mr. Pennecot that 18:13:18

5 imported the data into Zemax; right? 18:13:21

6 A. Yes. 18:13:22

7 Q. And it was Mr. Pennecot that then determined 18:13:25

8 the resultant emitting points of the laser diodes; 18:13:29

9 right? 18:13:29

10 A. Yes. 18:13:29

11 Q. And it was Mr. Pennecot that then exported it 18:13:33

12 into CAD software; right? 18:13:36

13 A. Yes, that's my understanding. 18:13:38

14 Q. And so Mr. Pennecot was the one who actually 18:13:42

15 came up with [REDACTED] 18:13:47

16 based on Mr. Boehmke's beam angles; isn't that right? 18:13:51

17 A. No, I don't think so. 18:13:52

18 Q. So what Mr. Pennecot exported into CAD 18:13:56

19 software, that wasn't [REDACTED]? 18:14:04

20 A. So if we go back carefully to transcripts, 18:14:07

21 what I should point out is, since this declaration, I 18:14:11

22 have more detailed information of exactly how 18:14:14

23 Mr. Pennecot did his import. To be accurate, I want 18:14:19

24 to say that there's an error in here that he brought 18:14:25

25 the angles into CAD software, brought the lens design 18:14:31

Page 262

1 and field curvature shape from Zemax into CAD 18:14:37
2 software. 18:14:37
3 Now you're asking did Mr. Pennecot in fact 18:14:40
4 design the [REDACTED]
[REDACTED] Mr. Pennecot was dependent on 18:14:50
6 somebody else to tell him how many boards the angles 18:14:53
7 had to be divided among, and then Mr. Pennecot set the 18:14:58
8 positions of the laser diodes onto those boards. 18:15:02
9 Q. Who told Mr. Pennecot to use [REDACTED] 18:15:05
10 A. I told Mr. Pennecot to use [REDACTED] in 18:15:09
11 the optical cavity. 18:15:10
12 Q. Who told him to use [REDACTED] in total? 18:15:13
13 A. I don't think anybody told him to use [REDACTED]
[REDACTED] in total. 18:15:18
15 Q. Who told him to put [REDACTED]
[REDACTED]? 18:15:22
17 A. Mr. Pennecot understood the reason we were 18:15:31
18 going to [REDACTED], so I'll -- with that said, I'm 18:15:35
19 not aware that anybody had to tell him to [REDACTED]
[REDACTED] 18:15:41
21 Q. You don't know where Mr. Pennecot [REDACTED]
[REDACTED] from? 18:15:45
23 A. No, I know exactly where he got it from. 18:15:48
24 Q. Where did he get it from? 18:15:49
25 A. The need to [REDACTED] 18:15:52

1 If you're asking do I know from whom, no. I would say 18:15:57
2 that he could derive that himself. 18:15:59

3 Q. Okay. So -- but just to be clear, 18:16:04
4 Mr. Pennecot -- you told him [REDACTED]

[REDACTED] in the SolidWorks 18:16:13
6 CAD software, and you told him 64 channels and he 18:16:16
7 created [REDACTED] is that fair? 18:16:21

8 A. I didn't necessarily tell him 64 channels. 18:16:24
9 He got the list of angles that Scott Boehmke had 18:16:28
10 generated. 18:16:29

11 Q. So he knew that there were 64 channels; 18:16:31
12 right? 18:16:31

13 A. Without me telling him. 18:16:33

14 Q. So the sequence of events was there was Scott 18:16:36
15 Boehmke provided beam angles for 64 channels? 18:16:40

16 A. Yes. 18:16:40

17 Q. That went to Mr. Pennecot. He imported that 18:16:45
18 data into Zemax. And after he outputted into CAD 18:16:50
19 software, the result was a design with [REDACTED]

[REDACTED] is that 18:17:01
21 right? 18:17:02

22 A. Can you read that back. 18:17:04

23 (Record read by reporter as follows: 18:17:04

24 "Question: He imported that data into Zemax. 18:17:04

25 And after he outputted into CAD software, the

1 result was a design with [REDACTED]
[REDACTED] is that
3 right?") 18:17:04
4 THE WITNESS: That's not quite right but it 18:17:26
5 skipped the step of [REDACTED]
[REDACTED]
[REDACTED] 18:17:40
10 BY MR. JAFFE: 18:17:40
11 Q. But your testimony is that that [REDACTED]
[REDACTED] was already in this spreadsheet from 18:17:46
13 Mr. Boehmke; right? So you didn't need to tell him 18:17:50
14 that? 18:17:51
15 A. The spreadsheet from Boehmke shows the number 18:17:56
16 of [REDACTED] was settled on. But did he have a subset of 18:18:01
17 that, did he look at the whole thing, or did we tell 18:18:04
18 him first? I don't recall the timing. 18:18:07
19 I believe we were having a 18:18:09
20 walking-back-and-forth-between-desks conversation 18:18:11
21 about [REDACTED] I went to Gaetan. I said, 18:18:14
22 we're thinking of [REDACTED]
[REDACTED] ? He 18:18:20
24 checked the Zemax. It looked okay. So at that point, 18:18:24
25 you could say he knew at that point that we were going 18:18:27

1 to have [REDACTED] 18:18:28

2 Q. Is Mr. Pennecot -- is he on your team? 18:18:31

3 A. Yes. 18:18:31

4 Q. So in terms of -- you didn't mention 18:18:36

5 Mr. Pennecot's involvement in this design in your 18:18:39

6 original declaration, did you? 18:18:40

7 A. No. 18:18:41

8 Q. Did you mention his involvement in your 18:18:43

9 supplemental declaration either? 18:18:45

10 (Witness reviews document.) 18:19:58

11 A. I don't recall his name in here and I don't 18:20:00

12 see his name in here either. 18:20:01

13 Q. Why did you --

14 MR. KIM: I think we've gone for well over an hour 18:20:05

15 now. I think we talked about taking a break after 18:20:08

16 that last line of questioning. 18:20:10

17 Can we take a break? 18:20:11

18 MR. JAFFE: Sure. 18:20:12

19 THE VIDEOGRAPHER: We are off the record at 6:20 18:20:14

20 p.m. 18:20:15

21 (Recess taken.) 18:20:15

22 THE VIDEOGRAPHER: We are back on the record at 18:41:06

23 6:41 p.m. 18:41:09

24 BY MR. JAFFE: 18:41:09

25 Q. When we took a break, I was about to ask you 18:41:13

1 why you didn't mention Mr. Pennecot's involvement in 18:41:18
2 coming up with the [REDACTED] 18:41:24
3 for Fuji. 18:41:26

4 A. Why his name is not in the declaration? It 18:41:35
5 wasn't in the original declaration written by legal. 18:41:42
6 It didn't pop out to me that we should add it. I 18:41:47
7 suppose there might be other people's names left out 18:41:50
8 along the way, I'm not sure. But when I reference my 18:41:53
9 team, I guess that would also include him too. 18:41:57

10 Q. Was it Uber's lawyers' decision or your 18:41:59
11 decision to refer to Mr. Pennecot's work as done by 18:42:03
12 the LiDAR team? 18:42:04

13 A. I think that was my decision. 18:42:09

14 Q. So you changed it to omit Mr. Pennecot's 18:42:11
15 name? 18:42:12

16 MR. KIM: Objection; form. 18:42:14

17 THE WITNESS: No. I mean, can we refer to -- find 18:42:18
18 this. My thinking at the time was it involved more 18:42:20
19 than one person. 18:42:21

20 BY MR. JAFFE: 18:42:21

21 Q. Whose decision was it to not mention Mr. 18:42:24
22 Pennecot? Yours or Uber's lawyers? 18:42:29

23 A. That's a funny worded question to decide to 18:42:37
24 not include something that didn't come to mind. I 18:42:41
25 wouldn't . . . I wouldn't characterize it that way. 18:42:44

1 Q. Right. But we talked about the work that Mr. 18:42:47
2 Pennecot did. 18:42:48
3 A. Yes. 18:42:48
4 Q. He did most of the work that's described in 18:42:51
5 that paragraph; right? 18:42:51
6 A. Yes. 18:42:51
7 Q. And so whose decision was it to omit his 18:42:56
8 name? 18:42:56
9 MR. KIM: Objection; form. 18:43:00
10 THE WITNESS: I believe it was my recommended text 18:43:02
11 to refer to my team because I believe . . . let me 18:43:08
12 find this. Of all the steps in there, it involved 18:43:11
13 more than one person. It was -- just seemed right. 18:43:17
14 BY MR. JAFFE: 18:43:17
15 Q. Who else did you omit from your declaration 18:43:21
16 that had primary involvement in the LiDAR work that 18:43:25
17 you described? 18:43:25
18 MR. KIM: Objection; form. 18:43:35
19 THE WITNESS: Now, we have to go through the work 18:43:38
20 and I need to see if we left anyone out. 18:43:42
21 BY MR. JAFFE: 18:43:42
22 Q. Let me ask you -- we're short on time. Your 18:43:46
23 counsel said he's going to cut me off.
24 Is there anyone, sitting here today without 18:43:49
25 reading the whole declaration again, that you recall 18:43:51

Page 268

1 leaving out even though they had a primary involvement 18:43:55
2 in what's described in your declaration? 18:43:57
3 MR. KIM: Objection; form. 18:44:00
4 THE WITNESS: I'm not aware of anyone being 18:44:03
5 intentionally left out, but I'm also not aware of 18:44:07
6 -- without going through this, it doesn't strike me as 18:44:11
7 anybody else who you would say is omitted. 18:44:14
8 BY MR. JAFFE: 18:44:14
9 Q. Just Mr. Pennecot? 18:44:16
10 A. Well, you see now I've got to go back. When 18:44:21
11 you said specifically Mr. Pennecot, then I've got to 18:44:26
12 double check, does that include Will Treichler, does 18:44:29
13 that include Scott Boehmke in that reference, does it 18:44:33
14 include Florin Ignatescu? 18:44:34
15 Q. Well, you mentioned Scott Boehmke; right?
16 A. His name does come up here. He plays a 18:44:40
17 larger roles in sourcing the angles. 18:44:43
18 Q. Sitting here today, Mr. Pennecot is the only 18:44:45
19 one that you can recall that you left out of your 18:44:48
20 declaration by name? 18:44:50
21 MR. KIM: Objection; form. 18:44:51
22 THE WITNESS: I though I just explained. I think 18:44:51
23 there's also the chance that my team left out Will 18:44:56
24 Treichler, Florin Ignatescu, Scott Boehmke. 18:45:23
25 THE REPORTER: Left out? Could you slow down.

1 Who is it? "I think there's also the chance that my
2 team left out" . . .

3 THE WITNESS: Will Treichler, Florin Ignatescu,
4 Scott Boehmke, although I wouldn't necessarily 18:45:25
5 consider him on my team in that regard. He was 18:45:28
6 already mentioned as the source of those angles so 18:45:32
7 that doesn't necessarily apply in that paragraph. 18:45:35

8 BY MR. JAFFE: 18:45:35

9 Q. So why don't we make this a little more 18:45:38
10 specific. In terms of what's described in paragraph 18:45:41
11 18, is there anyone else you omitted by name other 18:45:46
12 than Mr. Pennecot that had substantial involvement in 18:45:50
13 what's described here? 18:45:52

14 MR. KIM: Objection; form. 18:46:06

15 (Witness reviews document.) 18:46:06

16 THE WITNESS: No, I think it's probably fair to 18:46:09
17 say in the line 25 and 26 and the following page for 18:46:14
18 the ending of paragraph 18, Mr. Pennecot was the 18:46:18
19 primary one who was not named. 18:46:21

20 BY MR. JAFFE: 18:46:21

21 Q. I want to go back to your supplemental 18:46:23
22 declaration, 152. 18:46:26

23 A. All right. 18:46:27

24 Q. And in particular page 10 the end of 18:46:30
25 paragraph 15. You mentioned that Figure 7A and 7B in 18:46:39

Page 270

1 your supplemental declaration, those came from 18:46:41
2 Mr. Pennecot as well? 18:46:43
3 A. My understanding is those files came from 18:46:48
4 Mr. Pennecot, yes. 18:46:49
5 Q. And who provided the label [REDACTED] [REDACTED]
6 [REDACTED] 18:46:56
7 A. I believe that was annotated by Uber legal. 18:46:59
8 Q. Do you know for a fact that that is an 18:47:01
9 [REDACTED] 18:47:04
10 A. When this was being prepared, I saw a drawing 18:47:14
11 that defined this FAC lens and I saw the formula 18:47:20
12 attributed to the curved surface. It was an 18:47:25
13 [REDACTED] 18:47:28
14 Q. So you do know based on personal knowledge 18:47:32
15 that what's described here is [REDACTED]
16 [REDACTED] is that right? 18:47:37
17 A. I have good reason to believe so barring the 18:47:40
18 possibility that somehow this three-dimensional CAD 18:47:43
19 image came from some prior or different version but 18:47:46
20 that's unlikely. 18:47:48
21 Q. There are multiple versions of Uber's FAC 18:47:51
22 lenses; right? 18:47:52
23 MR. KIM: Objection; form. 18:47:53
24 THE WITNESS: I don't know that. 18:47:54
25 BY MR. JAFFE: 18:47:54

1 Q. Are you aware of any other versions of FAC 18:47:56
2 lenses that Mr. Pennecot designed? 18:47:58

3 A. I'm not aware of any other design than the 18:48:00
4 one that went into production at the injection molding 18:48:07
5 house. 18:48:08

6 Q. And that was based on [REDACTED] project; 18:48:12
7 right? 18:48:12

8 A. I believe so. 18:48:13

9 Q. How do you know that what's described here in 18:48:16
10 7.A and 7.B is actually what's in the Fuji? 18:48:21

11 A. I don't have the firsthand knowledge to know 18:48:28
12 for sure that that was the case. 18:48:30

13 Q. So sitting here today, you can't tell me 18:48:32
14 whether what's described here is actually what's used 18:48:36
15 in the Fuji or not? 18:48:38

16 MR. KIM: Objection; form. 18:48:38

17 THE WITNESS: I would say I don't have firsthand 18:48:40
18 knowledge to know that these two files came from the 18:48:44
19 version that was actually fabricated. But there are 18:48:48
20 features in here that I recognize and I've talked to 18:48:52
21 Gaetan about to know are still valid representations. 18:48:57

22 BY MR. JAFFE: 18:48:57

23 Q. Understood. Okay. So let me back up then. 18:49:01
24 It's fair to say that you don't know whether the 18:49:03
25 source files that were used to create Figure 7.A and 18:49:10

1 7.B in your declaration correspond to what's currently 18:49:14
2 in Fuji; right? 18:49:15
3 MR. KIM: Objection; form. 18:49:17
4 THE WITNESS: Correct. I don't know that the 18:49:19
5 versions of these files correspond to what was 18:49:21
6 actually built. 18:49:23
7 MR. JAFFE: I think we're at another exhibit here. 18:49:27
8 I think we're at 160.
9 THE REPORTER: I think we're at 161. 18:49:33
10 MR. JAFFE: I believe you.
11 MR. KIM: So you're introducing a new exhibit. 18:49:36
12 MR. JAFFE: Yes. I was raised by your redirect. 18:49:40
13 (Plaintiff's Exhibit 161 was marked.) 18:49:53
14 BY MR. JAFFE: 18:49:53
15 Q. Is this the document that formed the basis 18:49:55
16 for what's in your declaration? 18:49:57
17 A. This looks like the document that was shown 18:50:04
18 to me when my declaration was being prepared. So I 18:50:10
19 have reasonable assumption that this image was 18:50:15
20 extracted into the declaration. 18:50:17
21 Q. And do you see where there's a diagram here 18:50:21
22 in the middle and then it says [REDACTED]
23 [REDACTED] 18:50:25
24 A. Yeah. 18:50:25
25 Q. So this is a [REDACTED] 18:50:29

1 right? 18:50:30

2 MR. KIM: Objection; form. 18:50:31

3 THE WITNESS: Only it isn't. 18:50:32

4 BY MR. JAFFE: 18:50:32

5 Q. Oh, I see. So the document is wrong? 18:50:34

6 A. Yeah. 18:50:34

7 Q. Okay. And so when it says [REDACTED]

8 [REDACTED] here on the bottom, th t's also wr ng? 18:50:42

9 A. Yes. 18:50:42

10 Q. So even though this document says 18:50:46

11 [REDACTED] 18:50:50

12 A. True. 18:50:51

13 Q. And what is your basis for that belief? 18:50:53

14 A. The formula below the lower citing of 18:50:57

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED] 18:51:21

19 Q. Why is this labeled with [REDACTED]

20 [REDACTED] 18:51:26

21 MR. KIM: Objection; form. 18:51:27


22 THE WITNESS: I don't know why this was labeled 18:51:29

23 [REDACTED]

24 [REDACTED] 18:51:35

25 BY MR. JAFFE: 18:51:35

1 Q. Who labeled it [REDACTED] 18:51:38
2 A. I believe Gaetan labeled it [REDACTED] 18:51:40
3 [REDACTED] 18:51:41
4 Q. Why did he do that? 18:51:42
5 MR. KIM: Objection; form. 18:51:43
6 THE WITNESS: I don't know. 18:51:44
7 BY MR. JAFFE: 18:51:44
8 Q. [REDACTED]
9 [REDACTED] 18:51:53
10 A. I don't know if some version of it beforehand 18:51:55
11 had a cylindrical surface or not. 18:51:59
12 Q. Why didn't you mention in your declaration 18:52:01
13 that the diagram that formed the basis for you saying 18:52:06
14 that there's [REDACTED] actually said the 18:52:10
15 opposite? 18:52:11
16 MR. KIM: Objection; form. 18:52:14
17 THE WITNESS: I don't know. I didn't think that 18:52:16
18 was necessary. 18:52:17
19 BY MR. JAFFE: 18:52:17
20 Q. Why didn't you attach the document that 18:52:21
21 formed the basis of these diagrams? 18:52:26
22 A. I don't know. Didn't know that was 18:52:28
23 necessary. 18:52:28
24 Q. Okay. Would you dispute that at one time 18:52:36
25 Uber was -- and Otto were working on a FAC lens with a 18:52:42

1		18:52:44
2	MR. KIM: Objection; form.	18:52:46
3	THE WITNESS: I would want to ask the person who	18:52:49
4	did the work.	18:52:50
5	BY MR. JAFFE:	18:52:50
6	Q. You would ask Mr. Pennecot?	18:52:51
7	A. I would ask Mr. Pennecot.	18:52:53
8	Q. Why didn't you mention in paragraph 15 here	18:52:55
9	that you got this information from Mr. Pennecot?	18:52:59
10	A. Because the paragraph is describing the	18:53:20
11	design of the Fuji sensor and does not make a	18:53:23
12	discussion of its origin or history.	18:53:26
13	Q. But it's discussing the FAC lens and its	18:53:28
14	properties right here at the end of paragraph 15;	18:53:31
15	isn't it?	18:53:32
16	A. Yeah.	18:53:32
17	Q. And that's information that you got from	18:53:34
18	Mr. Pennecot; is that right?	18:53:36
19	A. That was information that was sourced from	18:53:38
20	Mr. Pennecot.	18:53:39
21	Q. So why didn't you mention that you got the	18:53:41
22	information from Mr. Pennecot?	18:53:43
23	MR. KIM: Objection; form.	18:53:44
24	THE WITNESS: The design is described in a file	18:53:47
25	that belongs to Uber.	18:53:51

1 BY MR. JAFFE: 18:53:51

2 Q. So what's described here in terms of the 18:53:53

3 properties -- as to the properties of the FAC lens, 18:53:59

4 that's not based on your personal knowledge, that's 18:54:02

5 based on representations from Mr. Pennecot 18:54:03

6 communicated to you through Uber's lawyers; is that 18:54:06

7 right? 18:54:07

8 MR. KIM: Objection; form. And to the extent it 18:54:11

9 calls for privileged conversations that you may have 18:54:15

10 had with any Uber lawyers. 18:54:18

11 THE WITNESS: I would say the properties defined 18:54:24

12 in here were communicated to me through this document 18:54:27

13 that Mr. Pennecot created. 18:54:32

14 BY MR. JAFFE: 18:54:32

15 Q. Right. But what I'm asking is what's 18:54:35

16 described here in your declaration, your basis for 18:54:39

17 saying that is based on information communicated to 18:54:45

18 you from Mr. Pennecot through Uber's lawyers not based 18:54:49

19 on your personal knowledge? 18:54:50

20 MR. KIM: Objection; form. And again to the 18:54:52

21 extent that it calls for privileged communications 18:54:55

22 from Uber lawyers. 18:54:58

23 THE WITNESS: Some of the information in paragraph 18:55:01

24 15 I know, from talking with Gaetan specifically 18:55:05

25 directly, some I know just from firsthand knowledge. 18:55:10

Page 277

1 Specifically the same -- this is a true and accurate 18:55:17
2 Zemax simulation of the beam regarding Figure . . . 18:55:24
3 albeit with now what I'm now seeing as a numbering 18:55:31
4 error, was transmitted to me through Uber's lawyers. 18:55:40
5 BY MR. JAFFE: 18:55:40
6 Q. What facts in paragraph 15 are you relying on 18:55:45
7 information from Mr. Pennecot? 18:55:47
8 (Witness reviews document.) 18:56:21
9 A. I had a discussion with him to make sure it 18:56:24
10 was [REDACTED] 18:56:26
11 Q. What did he tell you? 18:56:27
12 A. He told me that it was. 18:56:30
13 THE REPORTER: Excuse me. [REDACTED]? 18:56:30
14 THE WITNESS: I had a discussion with Gaetan to 18:56:40
15 establish that it was [REDACTED] 18:56:43
16 MR. JAFFE: One word. 18:56:45
17 THE REPORTER: Thank you. Just making sure. 18:56:45
18 THE WITNESS: He told me that it was. I asked him 18:56:54
19 about the formula and the term [REDACTED] 18:57:01
20 He told me that was a mistake. 18:57:03
21 BY MR. JAFFE: 18:57:03
22 Q. Did you discuss anything else? 18:57:06
23 A. I asked him about the formula that has the 18:57:12
24 [REDACTED]
25 [REDACTED] 18:57:23

1	[REDACTED]	18:57:26
2	[REDACTED]	18:57:30
3	[REDACTED]	18:57:35
4	[REDACTED]	18:57:39
5	Q. Anything else?	18:57:42
6	A. No.	18:57:42
7	Q. You didn't mention the basis -- you didn't	18:57:47
8	mention that you were relying on Mr. Pennecot in	18:57:50
9	paragraph 15, did you?	18:57:52
10	A. No, I don't think I mentioned that.	18:58:00
11	Q. You leave him out again?	18:58:02
12	MR. KIM: Objection; form.	18:58:05
13	THE WITNESS: I did not add his name to the	18:58:07
14	paragraph.	18:58:08
15	BY MR. JAFFE:	18:58:08
16	Q. Okay. We mentioned -- we talked about before	18:58:28
17	vertical spacing.	18:58:33
18	Do you remember that?	18:58:35
19	A. Yes.	18:58:35
20	Q. And you testified that you had a number of	18:58:41
21	different understandings of what vertical spacing was;	18:58:45
22	is that right?	18:58:45
23	A. I discussed that there were two possible	18:58:49
24	interpretations of the word. And I think in our	18:58:52
25	discussion together, you and I, that I was asking for	18:58:55

1 some clarification and mentioning the difference. But 18:58:58
2 then you were clarifying as well that in the terms D,Y 18:59:02
3 we were talking about a vertical spacing that was 18:59:04
4 linear. 18:59:05
5 Q. Right. So the delta of the Y axis; right? 18:59:10
6 A. Right.
7 Q. You've heard vertical spacing referred to 18:59:12
8 refer to the delta of the Y axis; right? 18:59:16
9 MR. KIM: Objection; form. 18:59:17
10 THE WITNESS: Here. I've heard of it here. I 18:59:19
11 don't think I remember having that reference -- 18:59:20
12 hearing that reference before our deposition today. 18:59:25
13 BY MR. JAFFE: 18:59:25
14 Q. But calculating the Y delta between laser 18:59:30
15 diodes, that's something that you're familiar with; 18:59:35
16 right? 18:59:36
17 MR. KIM: Objection; form. 18:59:37
18 THE WITNESS: It was a simple calculation. 18:59:40
19 BY MR. JAFFE: 18:59:40
20 Q. So let's look at Exhibit 160. 18:59:43
21 A. Yes. 18:59:44
22 Q. Just to orient ourselves. When is the first 18:59:47
23 time you saw this slide? 18:59:49
24 A. I don't recall if I've seen this before 18:59:58
25 today. 18:59:59

1 Q. Did you see this slide before Uber's lawyers 19:00:03
2 started asking you about it today? 19:00:06
3 A. I don't recall if I've seen it before Uber's 19:00:11
4 asked me about it today. 19:00:13
5 Q. You're not sure, though? 19:00:15
6 A. It's possible I saw it during prep last 19:00:23
7 night. 19:00:23
8 Q. I see. So it's possible that you saw this 19:00:27
9 document last night; you're not sure? 19:00:32
10 A. Yeah, I'm not sure. 19:00:33
11 Q. Did Uber's lawyer tell you that he was going 19:00:38
12 to ask you questions about this document last night? 19:00:42
13 MR. KIM: You can answer that yes or no. Caution 19:00:53
14 you not to reveal any privileged communications. 19:00:57
15 THE WITNESS: I don't recall if he told me he was 19:01:03
16 going to ask me about these last night or not. 19:01:08
17 BY MR. JAFFE: 19:01:08
18 Q. And did you have an understanding when Uber's 19:01:14
19 lawyers mentioned that they were going to do redirect 19:01:17
20 on a break today that he was going to be asking you 19:01:19
21 about what's in Exhibit 1060? 19:01:22
22 A. No. 19:01:22
23 Q. You didn't have any understanding? 19:01:25
24 A. No. 19:01:25
25 Q. Did you prepare Exhibit 1060? 19:01:30

Page 281

Page 282

1 THE WITNESS: I clarified these numbers have been 19:02:38
2 rounded to two decimal places.

3 BY MR. JAFFE: 19:02:38

4 Q. And then one of them has a sign problem too? 19:02:43

5 A. Right. 19:02:43

6 Q. So these weren't carried one to one from any 19:02:47
7 sort of source document; right? 19:02:50

8 MR. KIM: Objection; form. 19:02:54

9 THE WITNESS: Doesn't seem to. 19:02:55

10 BY MR. JAFFE: 19:02:55

11 Q. Let me just state it another way. 19:02:57

12 Exhibit 1060 does not accurately reflect the 19:03:01
13 diode placement on the Fuji design Board [REDACTED]; 19:03:05
14 right? 19:03:06

15 MR. KIM: Objection; form. 19:03:12

16 THE WITNESS: Exhibit 1060 does not accurately 19:03:14
17 represent the angle of the diodes on Board [REDACTED] because 19:03:18
18 of the sign error or inconsistency with the other two 19:03:23
19 boards. Boards [REDACTED] have been rounded down to two 19:03:28
20 decimal places. And now we're just haggling over how 19:03:33
21 to accurate is accurate. 19:03:34

22 BY MR. JAFFE: 19:03:34

23 Q. Well, I'm just asking for your opinion. 19:03:37

24 In your opinion, is Exhibit 1060 accurate or 19:03:41
25 not, yes or no? 19:03:43

Page 283

1 A. In my opinion, the inconsistency in the angle 19:03:50
2 makes it somewhat inaccurate. But the deviations in 19:03:55
3 the second decimal place being off by one digit 19:03:59
4 doesn't cause me concern. 19:04:01
5 Q. It doesn't you cause you concern, but it's 19:04:03
6 not accurate? 19:04:04
7 MR. KIM: Objection; form. 19:04:12
8 THE WITNESS: I don't know that it's not accurate 19:04:19
9 based on the second decimal place being off by one 19:04:23
10 digit. Because if you operate this in a spreadsheet, 19:04:26
11 these numbers might actually be more accurate than 19:04:29
12 simply subtracting the rounded numbers. 19:04:32
13 BY MR. JAFFE: 19:04:32
14 Q. But you don't know where the data came from 19:04:35
15 that actually generated this? They could actually be 19:04:38
16 inaccurate numbers in wherever this data came from; 19:04:41
17 right? 19:04:42
18 MR. KIM: Objection; form. 19:04:43
19 THE WITNESS: I don't believe that's the case. 19:04:45
20 BY MR. JAFFE: 19:04:45
21 Q. But you don't know that's the case? 19:04:47
22 A. Did I not -- I believe I did, compare these 19:04:52
23 angles to the angles in -- what is it, 155? Since 19:04:58
24 we're using exhibits. Where is this damn document? 19:05:04
25 So I've got Exhibit 155 here. I don't know 19:05:12

Page 284

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 from firsthand where this came from or that it's 19:05:16
2 actually the right numbers used on the Fuji other than 19:05:19
3 to establish some level of trust with document 19:05:23
4 production and collection and labeling as exhibits. 19:05:28
5 If these numbers are good and they compare within a 19:05:32
6 single digit on the second decimal place, I have to 19:05:37
7 believe there's few other places that it could have 19:05:40
8 come from. 19:05:41
9 Q. You're assuming that it came from Exhibit 19:05:43
10 155? 19:05:44
11 A. I'm assuming it came from Exhibit 155. 19:05:47
12 Q. But you have no personal knowledge on where 19:05:51
13 the numbers in Exhibit 160 [sic] came from? 19:05:57
14 MR. KIM: Objection; form. 19:05:58
15 THE WITNESS: I don't like the way you're painting 19:06:00
16 this. 19:06:00
17 If the numbers match, it's quite logical 19:06:03
18 to assume that they are accurately representing 19:06:06
19 the numbers in 155; but no, I don't have firsthand 19:06:10
20 knowledge of how the data was entered into this 19:06:13
21 document. 19:06:14
22 BY MR. JAFFE: 19:06:14
23 Q. But the numbers don't match; right? 19:06:17
24 MR. KIM: Objection; form. 19:06:18
25 THE WITNESS: You say the numbers don't match, but 19:06:26

1 the magnitudes do match. 19:06:28

2 BY MR. JAFFE: 19:06:28

3 Q. Right. But the delta, for example in column 19:06:30

4 [REDACTED] you found three differences in the delta in the 19:06:33

5 column from what's in Exhibit [REDACTED] right? 19:06:34

6 A. Yes. 19:06:34

7 Q. And for -- sorry. Not Exhibit [REDACTED] PCB [REDACTED] 19:06:40

8 And for PCB [REDACTED] they're all wrong b cause of 19:06:45

9 the sign conversion; right? 19:06:47

10 A. It's casting a greater degree of uncertainty 19:06:56

11 in this than I believe there really is. First off, I 19:06:59

12 probably need to clarify. [REDACTED] have sign changes 19:07:05

13 relative to this doc. We've already established this 19:07:09

14 document has a sign change relative to what's actually 19:07:12

15 on the board and that's understood. [REDACTED]

[REDACTED] Does 19:07:20

17 that make it inaccurate? I don't personally believe 19:07:24

18 it does. 19:07:26

19 Q. Well, this doesn't reflect what is actually 19:07:28

20 in the Fuji device; right? That's what I'm trying to 19:07:33

21 get at here. 19:07:34

22 MR. KIM: Objection; form. 19:07:46

23 THE WITNESS: I would have to know why the sign 19:07:51

24 change was applied to [REDACTED] If 19:07:56

25 there's a discrepancy, then yeah, then I can say that 19:07:58

Page 286

1 as a whole taken with no prior knowledge that this 19:08:02
2 document does not completely represent accurately what 19:08:06
3 goes into Boards [REDACTED] together as a whole. 19:08:09
4 BY MR. JAFFE: 19:08:09
5 Q. Let me ask the question again. 19:08:11
6 Sitting here today, you cannot -- sitting 19:08:14
7 here today, Exhibit 1060 does not accurately represent 19:08:18
8 what is in Fuji? Yes or no. 19:08:20
9 MR. KIM: Objection; form. 19:08:26
10 THE WITNESS: Yes, but only in the strictest 19:08:29
11 meaning of accuracy. 19:08:33
12 BY MR. JAFFE: 19:08:33
13 Q. What does that mean? 19:08:35
14 A. That means the magnitudes in here match but 19:08:41
15 the sign change has not been consistently applied. If 19:08:45
16 I had to use this data and no other data to build a 19:08:49
17 Fuji, then I would have a problem in the strict sense. 19:08:53
18 Q. I see. Okay. 19:08:54
19 So Exhibit 1060 has some inaccuracies and 19:09:00
20 problems, but it's generally accurate; is that right? 19:09:05
21 A. I'm more comfortable saying that, yes. 19:09:07
22 Q. So you couldn't build Fuji looking at Exhibit 19:09:10
23 1060; right? Using this data? 19:09:12
24 A. Right. 19:09:12
25 Q. And it wouldn't be fair to try and build a 19:09:16

Page 287

1 Fuji using just this data; right? 19:09:18

2 MR. KIM: Objection; form. 19:09:20

3 THE WITNESS: It would not render a correct Fuji 19:09:24

4 based on this data only by itself. 19:09:27

5 BY MR. JAFFE: 19:09:27

6 Q. Now, I want to go back to paragraph 19 of 19:09:34

7 your declaration, your original declaration, the 19:09:40

8 sentence about Mr. Levandowski. 19:09:42

9 A. Okay. 19:09:53

10 Q. We talked about this before and you testified 19:09:56

11 that you did no investigation to confirm the sentence 19:10:01

12 in paragraph -- the first sentence in paragraph 19; 19:10:04

13 right? 19:10:04

14 A. Right. 19:10:04

15 Q. And I just want to make sure that it's clear. 19:10:09

16 When you said you did no investigation, did 19:10:11

17 you do anything to confirm this statement before you 19:10:14

18 signed your declaration? 19:10:16

19 MR. KIM: Objection; form. 19:10:21

20 THE WITNESS: I refer to my recollection of how 19:10:23

21 the Fuji was developed, remembered no evidence of 19:10:28

22 Anthony coming in and controlling or designing those 19:10:31

23 aspects of the Fuji. 19:10:33

24 BY MR. JAFFE: 19:10:33

25 Q. Did you talk to anyone to confirm this 19:10:35

Page 288

1 statement? 19:10:36

2 A. No. 19:10:38

3 Q. Did you look at any documents to confirm this 19:10:41

4 statement? 19:10:41

5 A. No. 19:10:44

6 Q. Did you talk to anyone else on the LiDAR 19:10:46

7 team? 19:10:47

8 A. No. 19:10:50

9 Q. Okay. Other than consulting your memory, did 19:10:58

10 you do anything to confirm the first sentence of 19:11:00

11 paragraph 19 of your original declaration? 19:11:02

12 A. No, not that I recall. 19:11:12

13 Q. Okay. Let's -- 19:11:13

14 MR. KIM: So we've gone 30 minutes on the record. 19:11:18

15 We're going to conclude this deposition 19:11:23

16 as we discussed at the break on the grounds that 19:11:27

17 we've given you more time than we took on 19:11:32

18 redirect, and he's now gone close to seven hours 19:11:35

19 on the record. 19:11:36

20 MR. JAFFE: I understand your position. 19:11:39

21 THE VIDEOGRAPHER: This is the end of today's 19:11:44

22 deposition of Mr. James Haslim. 19:11:46

23 We are off the record at 7:11 p.m. 19:11:50

24 The total number of media used was six and it 19:11:53

25 will be retained by Veritext. Thank you. 19:11:56

Page 289

1 (Whereupon, the deposition was concluded at
2 7:11 p.m.)

3 ---oOo---

4
5
6
7
8 JAMES HASLIM
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Page 290